SERVICE 11

model 110 Fim / Am Stereophonic Tunea

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the crowning touch of perfection



MODEL IIO SERVICE MANUAL

This Service Manual is the first revised edition for model 110 (Applied to production serial No. from 1001 to 1550).

Included in this service manual are schematic diagram, indivisual parts list and P.C. Board-Component Assembly Diagram.

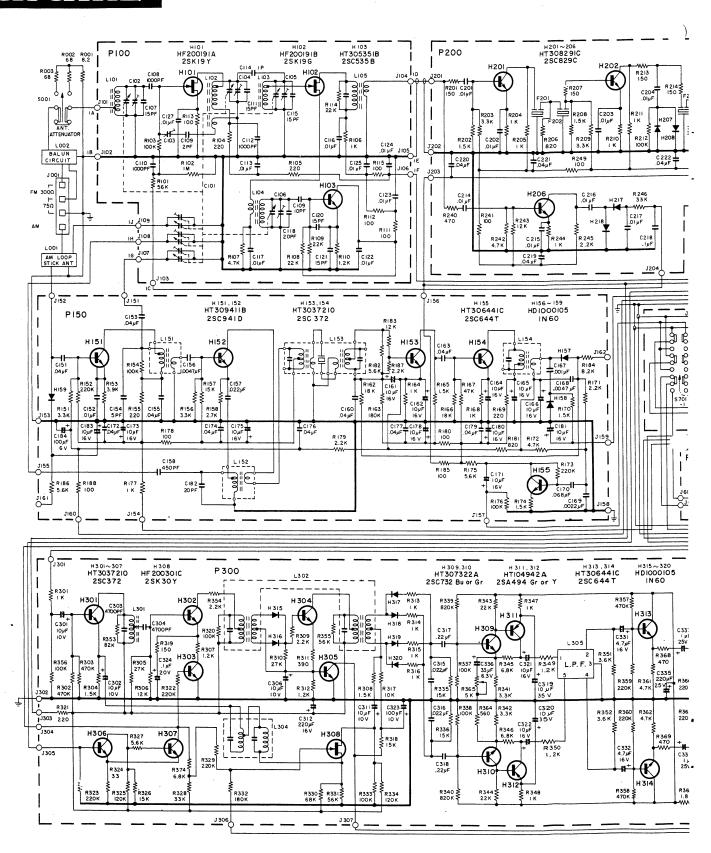
On the circuit description alignment method and repairing hints, refer to the original service manual.

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REF.	MARANTZ		REF.	MARANTZ	DESCRIPTION
DESIG.	PART NO.	DESCRIPTION	DESIG.	PART NO.	DESCRIPTION
P200	YD2819003	P. C. Board	C209-C212	DK1710301	Ceramic, 0.01μF, ±20%
1 200	(ZZ2819003)	•	C213	DK1810402	Ceramic, 0.1μF, +80%, -20%
1	(,	C214-C217	DK1710301	Ceramic, 0.01μF, ±20%
	·	RESISTORS		5144040400	Ceramic, 0.1µF, +80%, -20%
R201	RT1015114	Carbon, 150 Ω , ±10%, 1/4W	C218	DK1810402	
R202	RT1015214	Carbon, 1.5K Ω , ±10%, 1/4W	C219-C225	DK1840302	
R203	RT1033214	Carbon, $3.3K\Omega$, $\pm 10\%$, $1/4W$	C226	DD1540001	Ceramic, 40pF, ±5%
R204-R205	RT1010214	Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$			SEMICONDUCTORS
R206	RT1082114	Carbon, 820Ω , $\pm 10\%$, $1/4W$	H201-H206	HT308291C	Transistor, 2SC829C
R207	RT1015114	Carbon, 150Ω , $\pm 10\%$, $1/4W$	H207-H214	HD2001105	Diode, 1SI555
R208	RT1015214	Carbon, $1.5K\Omega$, $\pm 10\%$, $1/4W$	H215-H228	HD1000105	Diode, 1N60
R209	RT1033214	Carbon, $3.3K\Omega$, $\pm 10\%$, $1/4W$	HZ15-HZ20	1101000103	Blode, 11400
R210-R211	RT1010214	Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$			MISCELLANEOUS
R212	RT1010414	Carbon, 100K Ω , ±10%, 1/4W	L201	LC1682002	Choke Coil, 6.8µH±20% 100mA
		0 1 1500 1100/ 1/4W	F201-F206	FF1107003	Ceramic Filter, SFA 10.7MHz
R213-R214	RT1015114	Carbon, 150Ω , $\pm 10\%$, $1/4W$	J201-J208	YP1000094	Plug
R215	RT1082114	Carbon, 820Ω , $\pm 10\%$, $1/4W$	J201-J200	11 1000034	Tiug
R216	RT1015114	Carbon, 150Ω , $\pm 10\%$, $1/4W$	2500	VD001000F	P. C. Board
R217	RT1015214	Carbon, $1.5K\Omega$, $\pm 10\%$, $1/4W$	P500	YD2819005	
R218	RT1033214	Carbon, $3.3K\Omega$, $\pm 10\%$, $1/4W$		(ZZ2819005)	P. C. Board Assembly
R219-R220	RT1010214	Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$			RESISTORS
R221	RT1010414	Carbon, $100K\Omega$, $\pm 10\%$, $1/4W$	2504	DT1015114	Carbon, 150 Ω , ±10%, 1/4W
R222	RT1015114	Carbon, 150Ω , $\pm 10\%$, $1/4W$	R501	RT1015114	Carbon, 15032 , $\pm 10\%$, $1/4\%$
R223	RT1022114	Carbon, 220Ω , $\pm 10\%$, $1/4W$	R502	RT1010214	Carbon, 100Ω , $\pm 10\%$, $1/4W$
R224	RT1082114	Carbon, 820Ω , $\pm 10\%$, $1/4W$	R503	RT1010114	Carbon, 10032 , $\pm 10\%$, $1/4$ W
R225	RT1015114	Carbon, 150 Ω , ±10%, 1/4W	R504	RT1022314 RT1022114	Carbon, 220Ω , $\pm 10\%$, 1/4W
			R505	RT0582114	Carbon, 820 Ω , ±5%, 1/4W
	DT4000044	0-st 0.2KO ±10% 1/4W	R506-R507 R508-R509	RT0568214	Carbon, $6.8K\Omega$, $\pm 5\%$, $1/4W$
R226	RT1082214	Carbon, $8.2K\Omega$, $\pm 10\%$, $1/4W$	R510	RT1010114	Carbon, 100Ω , $\pm 10\%$, $1/4W$
R227	RT1015314	Carbon, $15K\Omega$, $\pm 10\%$, $1/4W$	R510	RT1056214	Carbon, 5.6K Ω , ±10%, 1/4W
R228-R229	RT1010214	Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$	R511	RT1030214	Carbon, $15K\Omega$, $\pm 10\%$, $1/4W$
R230	RT1027114	Carbon, 270Ω, ±10%, 1/4W	NOIZ	1111013314	Carbon, 1011057
R231	RT1010414	Carbon, $100K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $8.2K\Omega$, $\pm 10\%$, $1/4W$	R513	RN1018414	Carbon, 180K Ω , ±10%, 1/4W
R232	RT1082214		R514	RN 1022214	Carbon, 2.2K Ω , ±10%, 1/4W
R233	RT1015314		R515	RN1010414	- 1400/ 4/AM
R234	RT1015114		R516	RT1010114	- 100/ 1/114/
R235-R236	RT1010214	Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$ Carbon, 150Ω , $\pm 10\%$, $1/4W$	R517		Carbon, 100Ω , $\pm 10\%$, $1/4W$
R237	RT1015114	Carbon, 19032, ±10%, 1/4W	R518	RT1039214	Carbon, 3.9K Ω , \pm 10%, 1/4W
D220	DT1010414	Carbon, 100KΩ, ±10%, 1/4W	111310	1111000211	04.20,
R238	RT1010414				
R239	RT1015114	Carbon, 150Ω , $\pm 10\%$, $1/4W$ Carbon, 470Ω , $\pm 10\%$, $1/4W$			CAPACITORS
R240	RT1047114	Carbon, 47032 , $\pm 10\%$, $1/4W$	C501-C502	DK1710301	+000/ \//
R241 R242	RT1010114 RT1047214	Carbon, 10022 , $\pm 10\%$, $1/4W$	C503	EA1060169	Elect., 10μF, 16V
R242	RT1047214	Carbon, 4.7832 , $\pm 10\%$, $1/4W$	C504	DK1710301	Ceramic, 0.01µF, ±20%, YY
R244	RT1012314	Carbon, $12R32$, $\pm 10\%$, $1/4W$	C505	DK1840302	Ceramic, 0.04 μ F, +100%, -0%
R245	RT1022214	Carbon, 1.82 , $\pm 10\%$, $1/4$ W	C506-C507	· ·	Elect., 200pF, ±10%, SL
R246	RT1033314	Carbon, $33K\Omega$, $\pm 10\%$, $1/4W$	C508	EA1060169	Elect., 10μF, 16V
R247	RT1056314	Carbon, $56K\Omega$, $\pm 10\%$, $1/4W$	C509	EA1070061	Elect., $100\mu F$, $6.3V$
'''	1111000014		C510	ED1050501	Elect., 1μ F, 50V
R248	RT1027314	Carbon, $27K\Omega$, $\pm 10\%$, $1/4W$	C511	EA1060169	Elect., 10μF, 16V
R249-R252	1	Carbon, 100Ω , $\pm 10\%$, $1/4W$	C512	DK1840302	1000/ 00/
R253	RT 1022014	Carbon, 22Ω , $\pm 10\%$, 1/4W	1 1		
1200	111022014	33.3011, 2244, 21070, 17 111	C513	DD1620101	
		CAPACITORS	C514	EA1070161	1 : 10\/
C201-C207	DK1710301	1			
C208	DK1710301			1	
0200	DK1/10201	Ι σσιαιτιο, σ.σσιμι, -20/	J L	_L	1

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
H501 H502 H503-H504	HC1000105 HT306441B HD1000105	SEMICONDUCTORS IC TA7060P Transistor, 2SC644S Diode 1N60
J501-J506 J508-J509 L501	YP1000094 YP1000094 LI1018801	MISCELLANEOUS Plug Plug IFT FM Det.
P550	YD2820006 (ZZ2818006)	P. C. Board P. C. Board Assembly
R551 R552 R553 R554 R555 R556-R557 R559 R560 R561 R562	RT1056214 RT1010114 RT1027314 RT1010414 RT1010214 RT1033314 RT1033214 RT1033214 RT1056214 RT1018414	RESISTORS Carbon, $5.6 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, 100Ω , $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $27 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $100 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $1 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $33 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $33 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $33 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $3.3 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $5.6 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $180 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$
R563-R564 R578	RT1010114 RT1010114	Carbon, 100Ω , $\pm 10\%$, $1/4W$ Carbon, 100Ω , $\pm 10\%$, $1/4W$
C551 C552 C553 C554 C555 C556 C558 C559 C560-C561 C562	DD1615001 DF1668301 DF1740301 EA1060162 DK1840302 DK1810402 DK1810402 EA1060162 DK1710301 DK1840302	CAPACITORS Ceramic, 15pF , $\pm 10\%$, SL Mylar, $0.068 \mu \text{F}$, $\pm 10\%$, Mylar, $0.04 \mu \text{F}$, $\pm 20\%$ Elect., $10 \mu \text{F}$, 16V Ceramic, $0.04 \mu \text{F}$, $\pm 100\%$, -0% Ceramic, $0.1 \mu \text{F}$, $\pm 80\%$, -20% Ceramic, $0.1 \mu \text{F}$, $\pm 80\%$, -20% Elect., $10 \mu \text{F}$, 16V Ceramic, $0.01 \mu \text{F}$, $\pm 20\%$ Ceramic, $0.04 \mu \text{F}$, $\pm 20\%$ Ceramic, $0.04 \mu \text{F}$, $\pm 80\%$, -20%
H551 H552-H553 H554-H555		SEMICONDUCTORS Transistor, 2SC733 Gr Transistor, 2SC372 Diode, 1N60
. L551 J551-J561	LC2105001 YP1000094	MISCELLENEOUS Choke Coil, 1mH Plug



Applied to production Serial No. from 1001 to 1550.

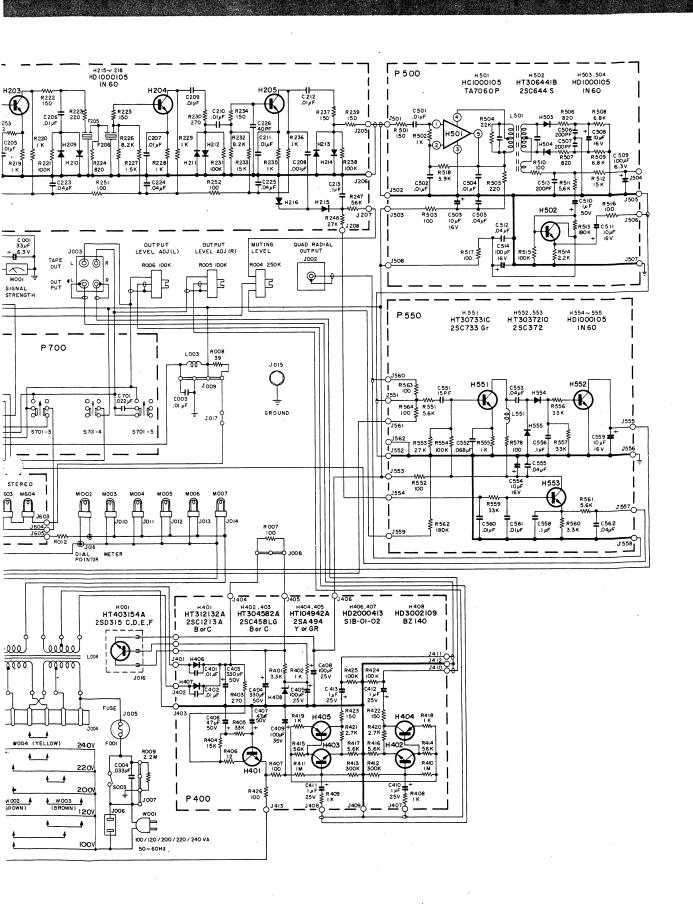


Figure 1. Schematic Diagram

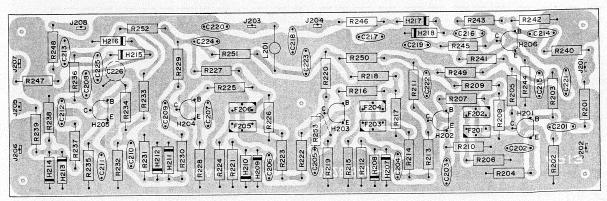


Figure 2. FM IF Amplifier Assembly P200 Component Locations

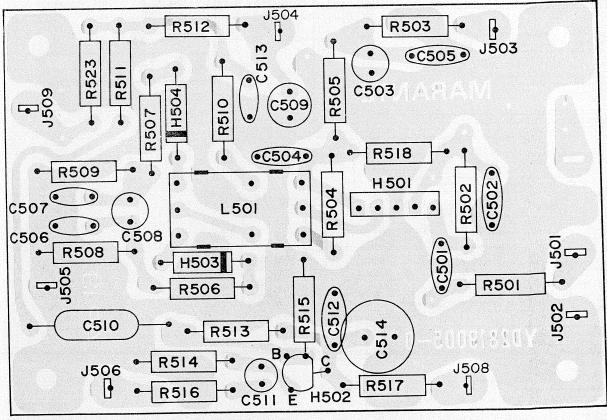


Figure 3. FM Detector Assembly P500 Component Locations

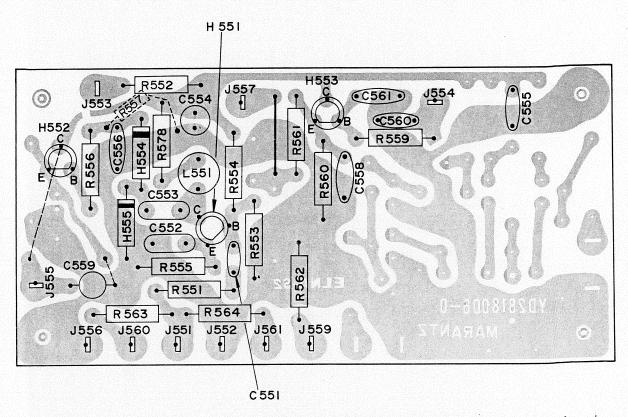


Figure 4. Muting Control Amplifier Assembly P550 Component Locations

INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 110 Stereophonic Tuner.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instruction should be read carefully. No attempt should be made to proceed without a good understanding of the operation in the receiver.

The part lists furnish information by which replacement part may be ordered from the Marantz Company. A simple description is included for parts which can be usually be obtained through local suppliers.

The Model 110 is a tuner version of the Marantz's Model 2245 Tuner/Amplifier and almost the same circuitry as used in the Model 2245 is employed except the audio Amplifier, and power supply circuit.

2. AM Tuner

All components except Tuning capacitor and ferrite bar antenna are mounted on a printed circuit board P150.

The AM signals induced in a ferrite bar antenna are applied to the base of RF amplifier transistor H151 through a capacitor of C151 and amplified to the level required for overcoming the conversion noises, thus giving good S/N performance. The tuned circuits inserted in both outand in-put circuit of the RF amplifier assure very high image and spurious rejection performance. Thus amplified and selected AM signals are then applied to the base of converter transistor H152 through a capacitor C156. While the local oscillator voltage is injected to the emitter of H152 through a capacitor C157. Both AM signals and oscillating voltage are mixed at the base-emitter junction and converted into 455KHz intermediate frequency. The resulting IF signal is applied to the first IF transformer L153 consisting of one ceramic filter and two tuned circuits.

The output of L153 is led to the transistor H153 which in turn apply its output to the transistor of next stage H154. The fully amplified IF output is then applied to the diode H157 to detect audible signal through the detector transformer L154. The detected audio signal is filtered and amplified and the final audio output is obtained from the collector of H155 and applied: to the tape out jacks and the function switch.

The DC component of the detected IF signal is used as a AGC voltage to control emitter current of H153 which in turn control the bias current of the RF amplifier through the resistor R179 and R151. A part of IF signal output is also applied to the diode H158 through a capacitor C167 and rectified to obtain DC current for energizing the AM signal strength meter MO01.

2.1 Suggestions for AM Tuner trouble shooting

Check for broken AM bar antenna, next try to tune station by rotating fly-wheel tuning knob slowly and observe the AM signal strength meter whether it deflects or not. If the signal strength meter gives a deflection at several frequencies received, no failure may exist in the stages at least preceding final IF transformer L154. Next connect a oscilloscope to the pin terminal J162 or J157 and check for audio signals with the tuning meter deflected. If the signal strength meter does not deflect, check the local oscillator circuit. Normal oscillating voltage at the hot end of the oscillator tuning capacitor is about 2 or 3 volts, varying with tuning capacitor position. When measuring oscillating voltage use a RF VTVM, no circuit tester gives correct indication. If the local oscillator voltage is normal, check all voltage distribution in the AM circuits by using a DC VTVM and compare the measured values with those given in the schematic diagram.

3. FM Tuner

The FM Tuner section of Model 110 is divided into five functional blocks: FM Front End, IF Amplifier, Detector, Muting Control and MPX Stereo Decoding Circuit.

FM signals induced by a FM antenna are led to FM antenna coil L101 through an attenuator switch and a Balun coil. These signals are then applied to the FET RF amplifier which in turn applies its output to the next FET Mixer H102 through the double tuned high selective circuits. The FET Mixer convert its input signal into 10.7 MHz intermediate frequency and amplifies it at the same time. The H103 is a local oscillator and its output is injected into the source of the FET Mixer, the injection voltage is about 700mV. The 10.7 MHz front end output is led to the next IF amplifier unit through a coaxial cable.

The IF amplifier unit consists of five stages of IF amplifier and one stage of AGC amplifier. Six pieces of ceramic filters are also used to obtain high selectivity, four stages of symmetrical diode limiters are also employed for the best limitting characteristics, improved capture ratio and good AM suppression.

A part of FM Front End output is applied to the AGC amplifier H206 and rectified its output is fed back to the gate of FET RF amplifier to decrease the gain with increased signal strength.

The IF signal sufficiently amplified through every stage of IF amplifier is finally applied to the IC limiter on the Detector Unit. The detected audio output is led to the buffer amplifier H502 and its buffered output is led to; (a) noise amplifier H551 through resistor R551 and capacitor C551, (b) Quad Radial Jack on the rear panel through resistor R564, (c) MPX stereo decoding circuit through R563.

3.1 Audio Muting and Stereo mode auto-selecting circuit

The muting circuit consisting of all solid-state electrical switching has been incorporated in the Model 110. Two inputs control the muting function. The first is related to signal strength, the second to the noise condition at the detector. These inputs are properly matrixed and gated to provide muting free from noise and transients.

The first input of DC voltage obtained by rectifing a part of IF output signal from the H205 is applied to the base of H306 and turns on it, if the IF output is greater than predetermined level (muting threshold level). When the H306 is turned on the H307 is turned off, allowing the emitter-collector resistance increasing and the collector voltage rises about 9.0V. The increased collector voltage increases the gate bias voltage and turns on the switching FET H308, decreasing the source-drain resistance to near zero ohm and allowing the audio signal applied to the source to flow to the center of 38 KHz switching transformer through the source-drain path.

When the input signal is lower than predetermined level, the DC output obtained is small and can not turn on the H306, thus the H306 keeps its turn-off state and this makes H307 turn on, decreasing the collector voltage and turning off H308. Thus no audio signals can pass through the FET. This is the fundamental principle of the muting operation but for more elaborate muting operation the second input is necessary.

The second input is used to protect the muting operation and MPX stereo beacon lamps from misoperation due to undesirable noises. The high frequency noises included in the detected audio signals are separated by a small capacitor C551 and amplified by the noise amplifier transistor H551 and its output is rectified by the two diodes. The rectified DC output is proportional to the noise components in the audio signals.

When there are excessive noises in the audio signals such as obtained with a station incorrectly tuned in, the rectified DC output turns on the transistor H522, decreasing the emitter-collector resistance to zero. This means the collector of H307 is short-circuited to the ground, therefore the H308 is turned off and any audio signals having excessive high frequency noises can not go through the FET's source-drain path.

The transistor H303 connected in series with the 19 KHz pilot signal amplifier transistor H302 is also turned off and no current flows in the H302, resulting in turning off the stereo beacon lamps. Thus misoperation due to undesirable noises is also avoided.

3.2 MPX Stereo Decoding Circuit

The buffered and non-equalized audio signals are applied to the first amplifier H301 which serve as a tuned amplifier for the pilot signal in the composite signals and as a buffer amplifier for the audio signals. The amplified 19 KHz pilot signal is led to the second 19 KHz amplifier H302 and further amplified if switching transistor H303 is turned on by the controlling DC signal as described in the preceding chapter. The final 19 KHz pilot signal is rectified by the doubler circuit consisting of the H315 and H316 to obtain synchronized 38 KHz amplifier driving signal.

The H304 is the 38 KHz tuned amplifier and supplies its output to the switching matrix circuit consisting of four diodes. While the composite signals are applied to the center tap of switching transformer 1/2 L302. The right and left stereo signals decoded by the switching circuit are led to the crosstalk cancelling amplifer which utilizes complementary configuration with NPN and PNP transistors through de-emphasis network consisting of C315 and 335, and C316 and R336. L305 is a low-pass filter networks having very sharp cut off characteristics and eliminates undesirable residual switching signals. Transistors H313 and H314 are buffer amplifiers and their outputs are led to the function switch.

3.3 Suggestion for Trouble Shooting of FM Tuner

3.3.1 Symptom: No. FM Reception

First turn on the Power switch and try to tune FM stations. Rotate the fly-wheel tuning knob slowly and observe the FM signal strength meter. If the signal strength meter deflect at several frequencies received, the tuner circuits preceding the discriminator circuit may have no failure. When no reading is obtained in the meter, check FM local oscillator circuit, using a RF VTVM. The normal local oscillator voltage is one or two volts (rms) at the tuning capacitor, depending on the tuning capacitor position. If the local oscillator voltage is normal, next check all voltage distribution in the FM Front End and IF amplifier unit and compare them with those shown in the circuit diagram. When signal strength meter deflects but no sound is obtained, check audio circuits, using high sensitive oscilloscope.

3.3.2 Symptom: No Stereo Separation

First check the "MONO" switch is in normal out position. Connect a FM RF signal generator output modulated by a stereo modulator to the rear FM antenna terminals, and check the stereo beacon is turned on or not. If not turned on, check for 19 KHz pilot signal and 38 KHz switching signal, using an oscilloscope.

4. AM Alignment Procedure

4.1 AM IF Alignment

- 1. Connect a sweep generator to the J151 and an alignment scope to the J162.
- 2. Rotate each core of IF transformer L153 and L154 for maximum height and flat top symmetrical response.

4.2 AM Frequency Range and Tracking Alignment

- 1. Set AM signal generator to 525 KHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end.) and adjust the oscillator coil L152 for maximum audio output.
- 2. Set the signal generator to 1650 KHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer on the oscillator tuning capacitor for maximum audio output.
- 3. Repeat the step 1 and 2 until no further adjustment is necessary.
- 4. Set the generator to 600 KHz and tune the receiver to the same frequency and adjust a slug core of AM ferrite rod antenna and RF coil L151 for maximum output.
- 5. Set the generator to 1400 KHz and tune the receiver to the same frequency and adjust both trimming capacitors of Antenna and RF tuned circuit for maximum output.
- 6. Repeat the step 4 and 5 until no further adjustment is necessary.
- Note: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

5. FM Alignment Procedure

- 1. Connect a FM signal generator to the FM antenna terminals and a oscilloscope and an audio distortion analyzer to the tape output jacks on the rear panel.
- 2. Set the FM SG to 87.5 MHz and provide about 3 to 5 μ V. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the core of oscillator coil L104 to obtain maximum audio output.
- 3. Set the FM SG to 108.5 MHz and provide about 3 to 5 μ V output. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C106 for Maximum output.
- 4. Repeat the step 2 and 3 until no further adjustment is necessary.
- 5. Set the FM SG to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the antenna coil L101, RF coil L102 and L103 and IF transformer L105 for minimum audio distortion.
- 6. Set the FM SG to 106 MHz and tune the receiver to the same frequency. Adjust the trimming capacitor C102, C104 and C105 for minimum distortion.
- 7. Adjust the secondary core (black) of discriminator transformer L501 so that the center tuning meter pointer indicates its center at no signal applied. Set the FM SG to 98 MHz and increase its output level to 1 K μ V and tune the receiver to the same frewuency so that the center tuning meter pointer indicates its center. Adjust the primary core (pink) of L501 for minimum distortion.

5.1 STEREO Separation Alignment

- 1. Set the FM SG to provide 1 $K\mu V$ at 98 MHz. Tune the receiver to the same frequency so that the center tuning meter pointer indicates its center.
- 2. Modulate the FM SG with stereo composite signal consisting of only subchannel signal (of course a pilot signal must be included). Adjust the core of L301 for maximum audio output, then, modulate the signal generator with a stereo composite signal consisting of only L channel signal and again adjust the core of L301 for maximum audio output.
- 3. Adjust the trimming resistor R365 for maximum and same separation in both channels.

5.2 Muting Circuit Alignment

- 1. Connect a VTVM across the resistor R002 and adjust the resistor R022 until the meter reads 0.75V DC at no signal.
- 2. Set the FM SG to provide 1 $K\mu V$ at 98 MHz and tune the receiver to the same frequency correctly.
- 3. Turn on MUTING push-switch. Shift the FM signal generator frequency to plus and minus and note both plus and minus shifted frequencies at which undesirable audio side responses are muted out. Adjust the R022 so that the same shifted frequencies mute the undesirable side response.

6. Test Equipment Required for Servicing

Table 1 lists the test equipment required for servicing the Model 110 Tuner.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Used with AM Signal generator
FM Signal Generator	Less than 0.3% distortion	Signal source for FM align- ment
Stereo Modulator	Less than 0.3% distortion	Stereo separation alignment and trouble shooting
Audio Oscillator	Weston Model CVO-100P, less than 0.02% residual distortion is required.	Sinewave and squarewaves signal source.
Oscilloscope	High sensitivity with DC horizontal and vertical amplifiers.	Waveform analysis and Trouble Shooting, and ASO alignment.
VTVM	With AC, DC, RF range	Voltage measurements.
Circuit Tester		Trouble Shooting

7. Voltage Conversion

This model is equipped with a universal power transformer to permit operation at 100, 120, 200, 220 and 240 V AC 50 to 60 Hz.

To convert the the Model 110 to the required voltage perform the following steps:

- (1) Remove the top cover.
- (2) Remove the Transformer Wire Connection Terminal Cover, loosen two Cover mounting screws on the rear panel, see Fig. 1.
- (3) Change the jumper wires as illustrated in Fig. 2. for the required AC voltage and replace the fuse as instructed.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

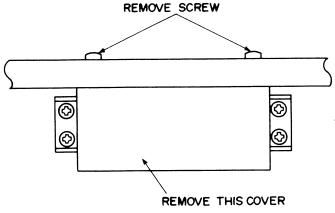
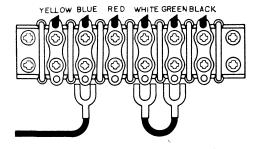
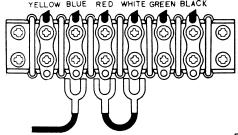


Figure 1. Remove the Terminal Cover

For 200V Operation (Use 3/10AFuse)

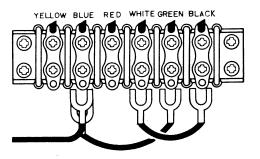


For 220 V Operation (Use 3/10 A Fuse)

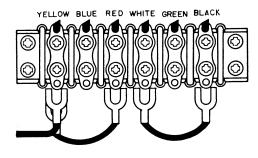


For 240V Operation (Use 3/10A Fuse)

For IOO V Operation (UseO.5A Fuse)



For 120 V Operation (UseO.5A Fuse)



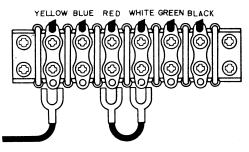


Figure 2. Voltage Conversion Chart

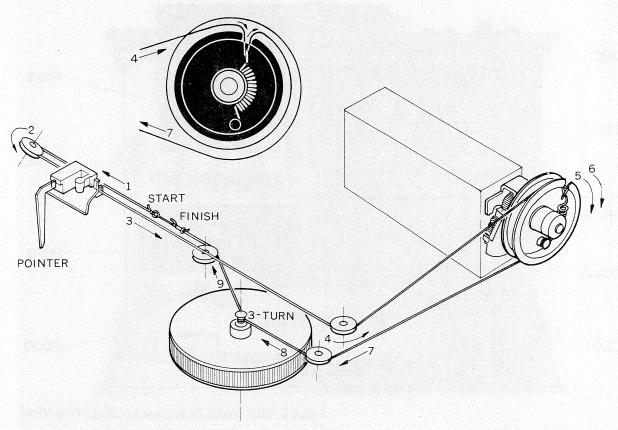
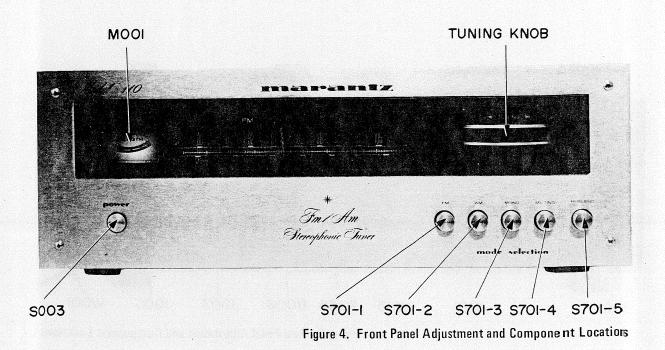


Figure 3. Dial Stringing



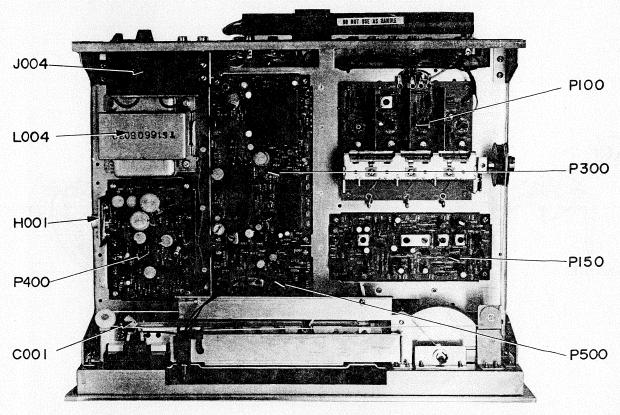


Figure 5. Main Chassis Component Locations (Top View)

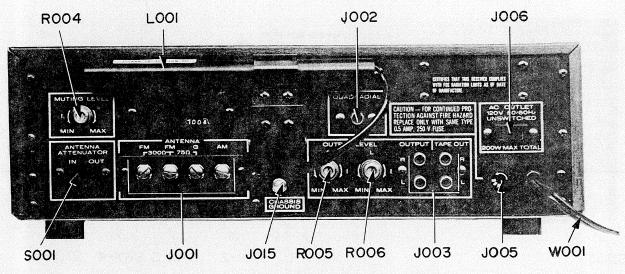


Figure 6. Rear Panel Adjustment and Component Locations

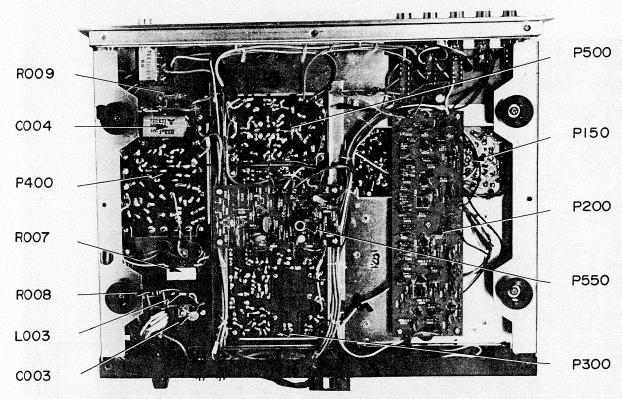


Figure 7. Main Chassis Component Locations (Bottom View)

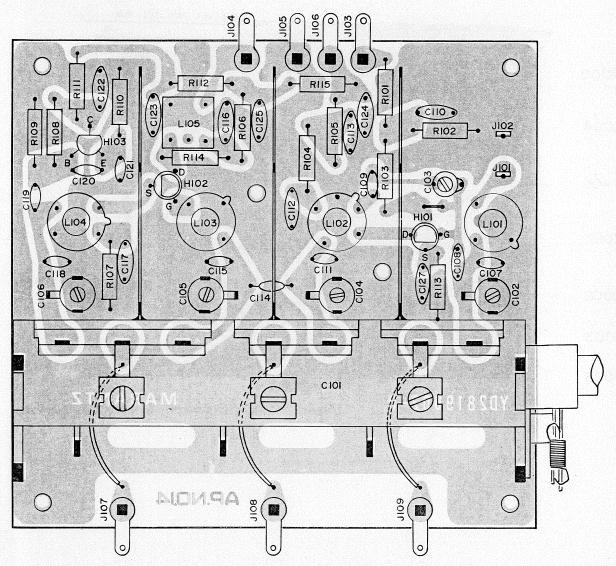


Figure 8. FM Front End Assembly P100 Component Locations

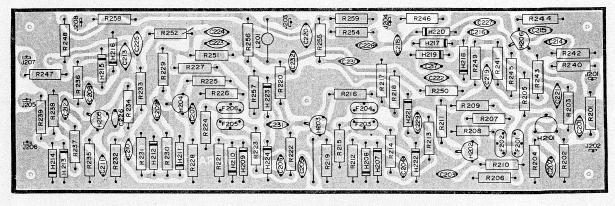


Figure 9. FM IF Amplifier Assembly P200 Component Locations

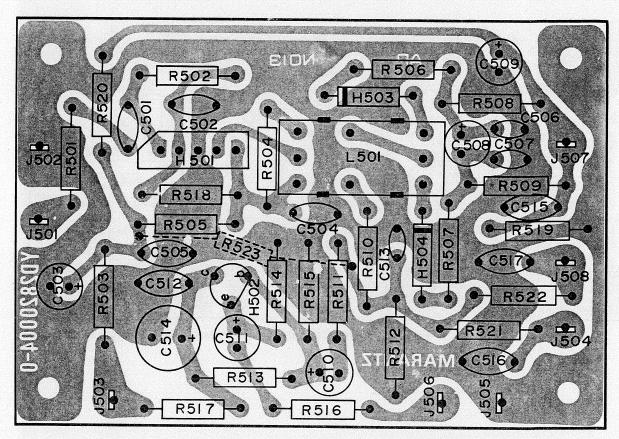


Figure 10. FM Detector P500 Component Locations

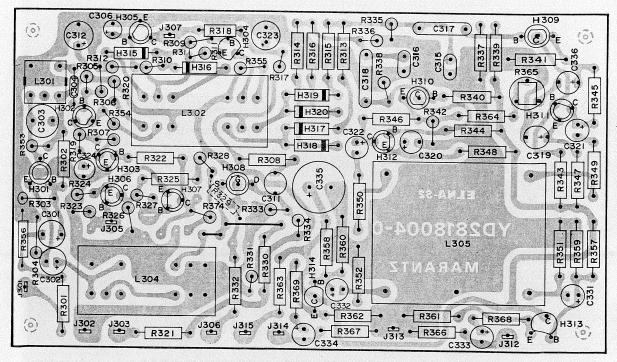


Figure 11. MPX Stereo Decoding Amplifier P300 Component Locations

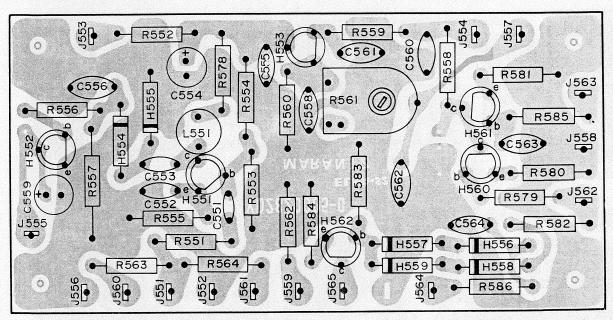


Figure 12. Muting Control Amplifier Assembly P550 Component Locations

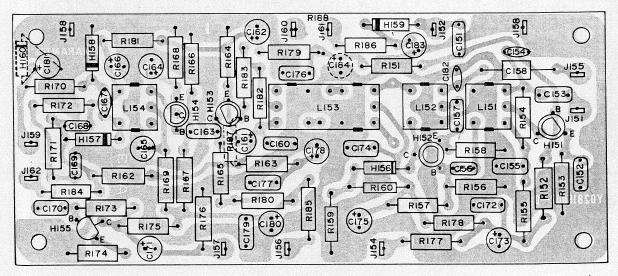


Figure 13. AM Tuner Unit Assembly P150 Component Locations

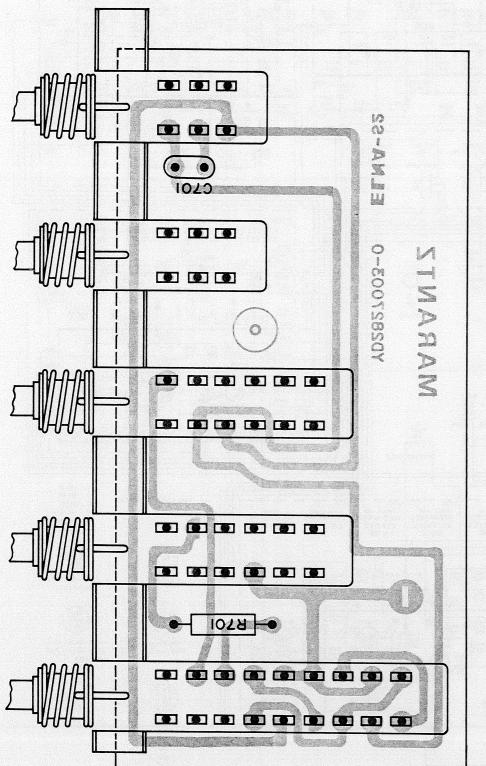


Figure 14. Mode Selection Switch Unit Assembly P700 Component Locations

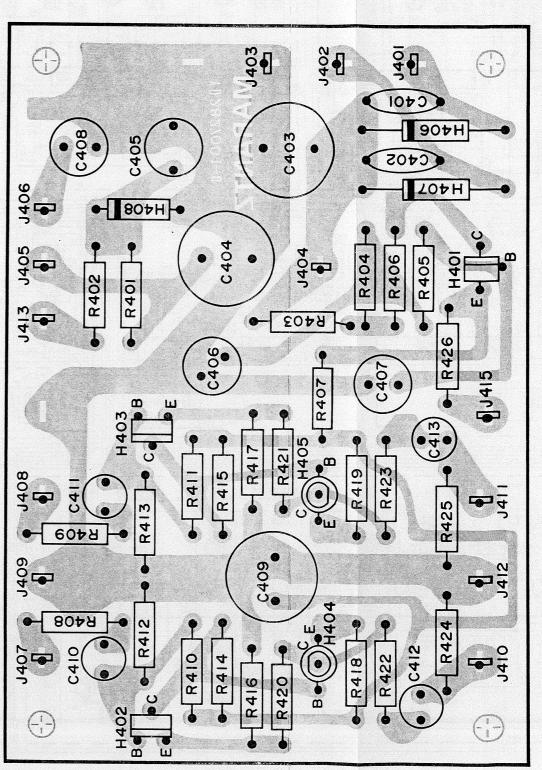


Figure 15. Pre-Amplifier and Power Supply Assembly P400 Component Locations

marantz

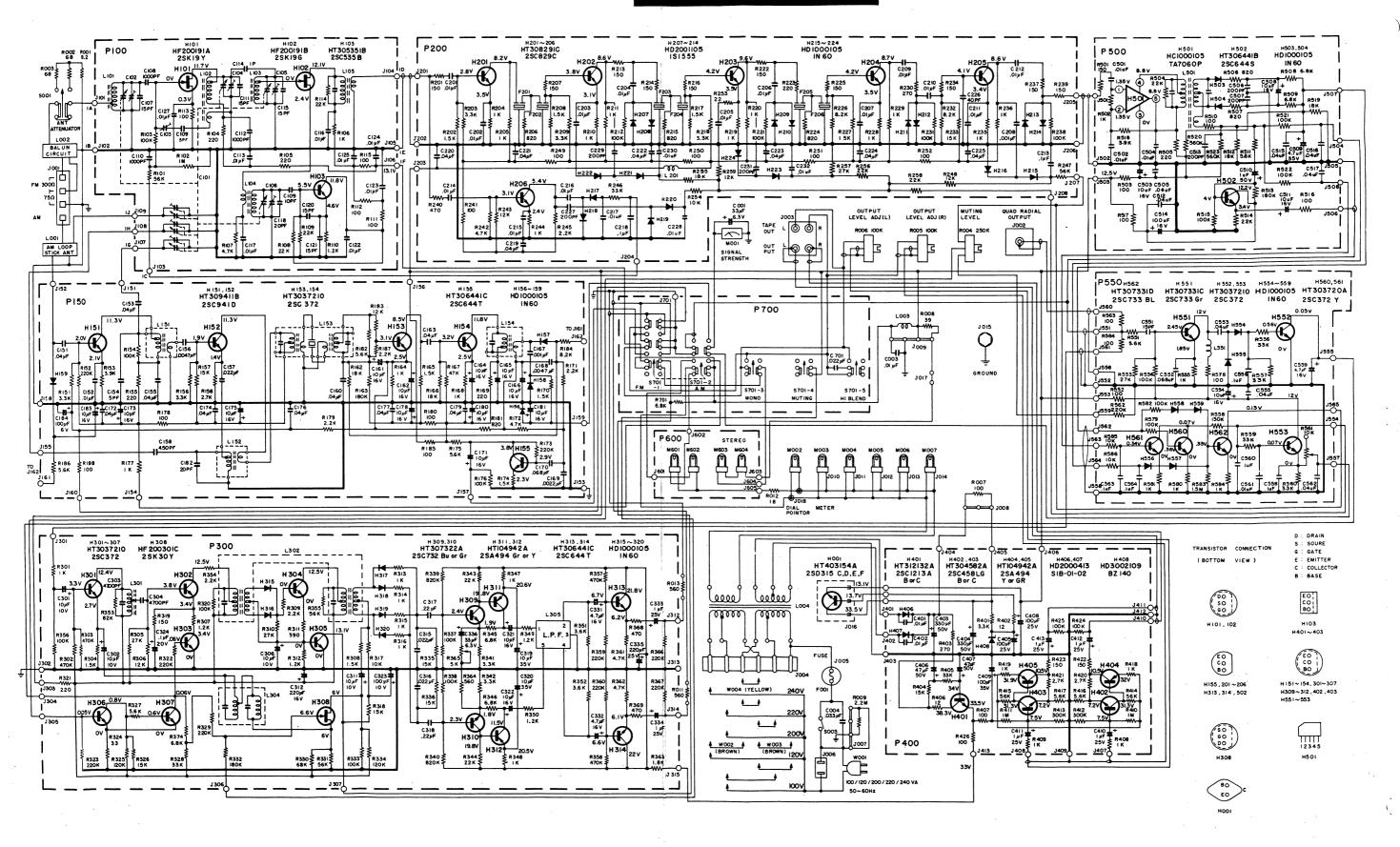


Figure 16. Schematic Diagram

REF.	MARANTZ		REF.	MARANTZ	
DESIG.	PART NO.	DESCRIPTION	DESIG.	PART NO.	DESCRIPTION
	000740440	Farmer and the			_
A	282740140	Frame assembly Escutcheon	0221	282715901	Drum
0101	282706301	Frame	0222	71101679M	Spring
0102	282740101	Window	0223	281905102	Guide
ງິ0103	282715801		0225	273010903	Shield x 3
0105	282705301	Cover	0226	273025901	Bush x 3
0621	51122608E	T H M screw x 4	0227	138200503	Glamper x 5
]_	000740040	Daru kuralist sasambli	0228	257700502	Glamper x 10
В	282716040	Rear bracket assembly	0229	281816006	Bracket
0124	282716002	Bracket x 2	0230	282126902	Protector
0531	51100308S	B H M screw x 2	0231	282716050	Bracket K
0532	51100308S	B H M screw x 2	l		
0533	55060307F	T R rivet x 2	0235	282112001	Insulator
0534	54050300R	T L washer OR x 2	0301	282716003	Bracket
J002	YT0201006	Terminal, 1P	0304	282705101	Guide
J003	YT0204003	Terminal, 4P	0306	257710602	Bearing
J006	YJ0400018	Jack, AC outlet	0307	141511801	Spacer
		<u>-</u>	0309	281810650	Bearing K
С	282727340	Fly wheel assembly	0315	282727401	Reflector
0117	257706302	Escutcheon	0316	281827101	Holder
0118	257706303	Escutcheon	0318	282716006	Bracket
0119	257727301	Fly wheel	0319	282716007	Bracket
0313	282711201	Shaft			
0415	53110603A	Hexagon nut	0320	263711203	Shaft x 2
0416	54040602A	Spring washer	0322	282716051	Bracket K
)			0326	257726201	Pulley x 4
ĺD	282710340	Pointer assembly	0330	257711803	Spacer x 2
0113	281810301	Pointer	0332	282725901	Bush
0114	281810302	Pointer	0333	282711801	Spacer x 4
0115	281805301	Cover	0334	282710701	Sheet
M002	IN1008018	Lamp, 8V	0335	282710702	Sheet x 2
			0401	51570306B	P H tapt screw x 8
E	282700640	Dial string assembly	0402	51570306B	P H tapt screw x 5
0328	120225801	Hook			·
0329	72081602A	String 160	0403	51570306B	P H tapt screw x 8
0435	56382040G	Eyelet	0404	51570306B	P H tapt screw x 2
			0405	51570306B	P H tapt screw x 3
0104	281825905	Bush	0406	51570306B	P H tapt screw x 2
0107	281815401	Knob x 5	0407	51570306B	P H tapt screw x 2
0109	281815402	Knob	0408	51570306B	P H tapt screw x 2
0111	282730201	Dial	0409	51570306B	P H tapt screw x 2
0112	282705302	Cover	0410	51570306B	P H tapt screw x 2
0121	282725701	Lid	0411	51570306B	P H tapt screw x 2
0122	282825702	Lid	0412	51040306A	F H M screw x 2
0129	282726501	Indicator			·
0130	257816052	Bracket K	0413	51570306B	P H tapt screw x 2
0134	281927103	Holder	0414	51040306A	F H M screw x 2
			0417	51640412D	Set screw CP
0135	53228059E	Nut x 3	0418	54040402A	Spring washer
0201	145525901	Bush	0419	53110403E	Hexagon nut
0202	275905701	Leg x 4	0420	54020601A	Flat washer P
0203	282706302	Escutcheon	0421	51570306B	P H tapt screw × 2
0210	280312001	Insutator	0422	51570306B	P H tapt screw x 4
0211	282710550	Chassis K x 2	0423	51570306B	P H tapt screw x 4
0216	282716004	Bracket x 2	0424	51570306B	P H tapt screw x 4
0217	282716005	Bracket x 2			1
0219	282726901	Protector	0425	51570306B	P H tapt screw x 4
0220	282710101	Support x 2	0426	51570306B	P H tapt screw x 4

REF.	MARANTZ		REF.	MARANTZ	
DESIG.	PART NO.	DESCRIPTION	DESIG.	PART NO.	DESCRIPTION
0.407	545700000	811.	D400	DT4040044	Carbon, 1K Ω , ±10%, 1/4W
0427	51570306B	P H tapt screw x 4	R106	RT1010214	
0428 0429	51570306B 51570306B	P H tapt screw x 5	R107 R108-R109	RT1047214 RT1022314	
		P H tapt screw x 5			
0430	51570306B	P H tapt screw x 2	R110	RT1012214	
0431	51570308B	P H tapt screw x 2 P H M screw x 3	R111-R113	RT1010114	, , , , , , , , , , , , , , , , , , , ,
0432	51060305E	Set screw HP x 2	R114 R115	RT1022314 RT1010114	
0433	51650304D		I NIIIS	N 1 10 10 114	Carbon, 100 Ω , ±10%, 1/4W
0501 0502	51570306B	P H tapt screw x 4			CAPACITORS
0503	51570312B	P H tapt screw x 4	C101	CA4330001	Variable FM4, AM3 Grang
0503	54040402A	Spring washer x 4	C101	CT1100001	Trimmer, 1.5pF~10pF, NPO
0504	E1E70400B	Dill tont course of	C102	CT1100001	Trimmer, 1.5pF~10pF, NPO
	51570408B	P H tapt screw x 4	C103	CT1100002 CT1100001	Trimmer, 1.5pF~10pF, NPO
0506 0507	51100306S	B H M screw x 4	C104-C108	DD1615001	Ceramic, 1.5pF, ±10%, SL
0507	51100306S	B H M screw x 2	C107	DK1710201	Ceramic, 1000pF, ±20%, YY
0509	51100306S 51100306S	B H M screw x 2 B H M screw x 2	C108	DD1105001	Ceramic, 1000pF, ±20%, 11 Ceramic, 5pF, ±0.5pF, SL
0510			C110	DK1710201	Ceramic, 1000pF, ±20%, YY
0510 0511	51100306S 51100306S	B H M screw x 2 B H M screw x 3	C110	DD1715001	Ceramic, 1000pF, ±20%, 11 Ceramic, 15pF, ±10%, SL
0515	51100306S 51100304S	B H M screw x 2	C112	DK1710201	Ceramic, 150F, ±10%, 3C Ceramic, 1000pF, ±20%, YY
0515	511003043 51100308S	B H M screw x 2	110112	DK1710201	Ceramic, 1000pr, ±20%, 11
0518	54050300R	T L washer OR x 2	C113	DK1710301	Ceramic, 0.01μF, ±20%, ΥΥ
0518	54050300N	I L Washer On X 2	C114	DD1001001	,
0519	53110303E	Hexagon nut x 2	C115	DD1001001	
0521	53110303E 53110403E	Hexagon nut	C116-C117	DK1710301	Ceramic, 15p F, $\pm 10\%$, SL Ceramic, 0.01 μ F, $\pm 20\%$, YY
0521	54020401E	Flat washer P	C118	DD1620004	Ceramic, 0.01µF, ±20%, 11
0523	54050400R	T L washer OR	C119	DD1620004 DD1210006	Ceramic, 20pF, ±10%, 111 Ceramic, 10pF, ±1pF, CH
0524	62041760W	Lug	C120	DD1210008	Ceramic, 15pF, ±10%, CH
0525	51100310S	B H M screw x 2	C121	DD1615003	Ceramic, 15pF, ±10%, CH
0526	53110303E	Hexagon nut x 2	C122-C125	DK1710301	Ceramic, 1991, $\pm 10\%$, Gri
0527	54060300R	T L washer IR x 5	C127	DK1710301	Ceramic, 0.01 μ F, ±20%, YY
0535	53110303E	Hexagon nut x 4	1 0127	DK1710301	Geranne, 0.0 μ i, $\pm 20\%$, ii
0612	64002500R	RG Ring E x 2			TRANSFORMERS
00.2	0400230011	TO TIME L X Z	L101	LA1202603	Ant. Coil
0613	51570308B	P H tapt screw	L102	LA1202604	RF Coil
0614	53110303A	Hexagon nut	L103	LA1202605	RF Coil
0615	54050300R	T L washer OR x 5	L104	LO1202603	OSC Coil
0616	51570306B	P H tapt screw x 3	L105	LI1001601	IFT
0617	51100306S	B H M screw x 2		211001001	
0618	59030805P	Washer x 4			SEMICONDUCTORS
0619	54040302A	Spring washer x 5	H101	HF200191A	Transistor 2SK19 Y
0620	59030805P	Washer	H102	HF200191B	Transistor 2SK19 G
0622	51100406S	B H M screw x 8	H103	HT305351B	Transistor 2SC535 B
0624	51100406S	B H M screw x 4			. 1
	011001000	B TT IN SOLOW X T			MISCELLANEOUS
0625	54020401S	Flat washer P x 4	J101-J102	YP1000094	Plug
0627	51570410B	P H tapt screw x 4	J103-J109	57271240W	Lug Eyelet
0628	54020401E	Flat washer P x 4			3 ,
0629	54040402N	Spring washer x 4	P150	YD2818002	P. C. Board
l		• •		(ZZ2818002)	
P100	YD2819002	P. C. Board		`	· · · · · · · · · · · · · · · · · · ·
l	(ZZ2819002)		11		RESISTORS
l		,	R151	RT1033214	Carbon, 3.3 K Ω , $\pm 10\%$, $1/4$ W
l		RESISTORS	R152	RT1022414	Carbon, 220 K Ω , ± 10 %, $1/4$ W
R101	RT1056314	Carbon, $56K\Omega$, $\pm 10\%$, $1/4W$	R153	RT1039214	Carbon, 3.9 K Ω , ± 10 %, $1/4$ W
R102	RT1010514	Carobn, $1M\Omega$, $\pm 10\%$, $1/4W$	R154	RT1010414	Carbon, $100 K\Omega$, $\pm 10\%$, $1/4W$
R103	RT1010414	Carbon, 100 K Ω , ± 10 %, $1/4$ W	R155	RT1022114	Carbon, 220Ω , $\pm 10\%$, $1/4W$
R104-R105	RT1022114	Carbon, 220Ω , $\pm 10\%$, $1/4W$	R156	RT1033214	Carbon, 3.3 K Ω , ± 10 %, $1/4$ W
	4				

DEE	· 1	MADANTZ					LAADANTZI			
REF DESI		MARANTZ PART NO.	DESCRI	TION		REF. DESIG.	MARANTZ PART NO.	DESCR	IDTION	l
DESI	G.	PANT NO.	DESCRI	TION		DESIG.	PART NO.	DESCR	IFITON	
R157		RT1015314	Carbon, $15K\Omega$,	±10%,	1/4W	C175	EA1060169	Elect., 10µ	F	16V
R158		RT1015314	Carbon, $2.7K\Omega$,	±10%,	1/4W	C176-C177	DF1740301	Mylar, 0.0		±20%
		RT1027214	Carbon, $82K\Omega$,	±10%,	1/4W					16V
R159	l		·	•		C178	EA1060169	Elect., 10µ		1
R160	1	RT1015214	Carbon, $1.5K\Omega$,	±10%,	1/4W	C179	DF1740301	•		±20%
R162	1	RT1018314	Carbon, $18K\Omega$,	±10%,	1/4W	C180	EA1060169	Elect., 10µ	•	16V
R163	- 1	RT1018414	Carbon, 180K Ω ,	±10%,	1/4W	C181	EA1060169	Elect., 10µ	•	16V
R164		RT1010214	Carbon, 1K Ω ,	±10%,	1/4W	C182	DD1620001	Ceramic, 20p	F, :	±10%
R165	l	RT1015214	Carbon, $1.5 \text{K}\Omega$,	±10%,	1/4W	C183	EA1060169	Elect., 10µ	۶F,	16V
R166	i	RT1018314	Carbon, $18K\Omega$,	±10%,	1/4W	C184	EA1070109	Elect., 100	μF,	10V
R167	l	RT1047314	Carbon, $47K\Omega$,	±10%,	1/4W			,		
	l		•	•	Į.			TRANSFORMERS	3	i
R168		RT1010214	Carbon, 1K Ω ,	±10%,	1/4W	L151	LA1001017	RF Coil, 200		
R169	l	RT1022114	Carbon, 220 Ω ,	±10%,	1/4W	L152	LO1001017	OSC Coil, 120		
1	l	RT1015214	Carbon, 1.5K Ω ,	±10%,	1/4W			·	μΠ	l
R170	l					L153	LI1028002	IFT		
R171	1	RT1022214	Carbon, $2.2K\Omega$,	±10%,	1/4W	L154	LI1001048	IFT		
R172	ı	RT1047214	Carbon, $4.7K\Omega$,	±10%,	1/4W	L153	LI1028003	IFT		1
R173	l	RT1022414	Carbon, 220K Ω ,	±10%,	1/4W		i i			
R174		RT1015214	Carbon, 1.5K Ω ,	±10%,	1/4W			MISCELLANEOU	S	ı
R175	- 1	RT1056214	Carbon, $5.6K\Omega$,	±10%,	1/4W	J151-J162	YP1000094	Plug		ı
R176	l	RT1010414	Carbon, $100 \text{K}\Omega$,	±10%,	1/4W		1	_		I
R177	ı	RT1010214	Carbon, $1K\Omega$,	±10%,	1/4W			SEMICONDUCTO	RS	I
	I			,	.,	H151-H152	HT309411B	Transistor 2SC941		
R178	- 1	RT1010114	Carbon, 100Ω ,	±10%,	1/4W	H153-H154	HT3037710	Transistor 2SC372		i
	l	RT1022214		±10%,	1/4W		HT306441C			I
R179	Į		Carbon, $2.2K\Omega$,			H155		Transistor 2SC644	(1)	1
R180	ŀ	RT1010114	Carbon, 100Ω ,	±10%,	1/4W	H156-H160	HD1000105	Diode 1N60		1
/ R181	ľ	RT1082114	Carbon, 820Ω ,	±10%,	1/4W					1
R182	l	RT1056214	Carbon, $56K\Omega$,	±10%,	1/4W	P200	YD2819008	P. C. Board		
R183		RT1012314	Carbon, 12K Ω ,	±10%,	1/4W		(ZZ2819008)	P. C. Board Assem	bly	
R184	1	RT1082214	Carbon, $8.2K\Omega$,	±10%,	1/4W		1			
R185	ļ	RT1010114	Carbon, 100Ω ,	±10%,	1/4W			RESISTORS		
R186		RT1056214	Carbon, 5.6K Ω ,	±10%,	1/4W	R201	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W
R187		RT1022214	Carbon, 2.2KΩ,	±10%,	1/4W	R202	RT1015214	Carbon, $1.5 K\Omega$,	±10%,	1/4W
1	l				.,	R203	RT1033214	Carbon, $3.3 \text{K}\Omega$,	±10%,	1/4W
R188		RT1010114	Carbon, 100Ω ,	±10%,	1/4W	R204-R205	RT1010214	Carbon, $1K\Omega$,	±10%,	1/4W
1,,,,,,	į	1111010114	Carbon, 10042,	±1070,	1/300	R206	RT1082114	Carbon, 820 Ω ,	±10%,	1/4W
1			CARACITORS					•	±10%,	1/4W
0454		DE4740004	CAPACITORS	1000/		R207	RT1015114	Carbon, 150 Ω ,	•	
C151		DF1740301	Mylar, 0.04μ F,	±20%	-	R208	RT1051214	Carbon, $1.5K\Omega$,	±10%,	1/4W
C152		DF1710301	Mylar, 0.01μ F,	±20%		R209	RT1033214	Carbon, $3.3 K\Omega$,	±10%,	1/4W
C153		DF1740301	Mylar, 0.04μ F,	±20%		R210-R211	RT1010214	Carbon, 1K Ω ,	±10%,	1/4W
C154]	DD1105001	Ceramic, 5pF,	±0.5pF	, [R212	RT1010414	Carbon, 100 K Ω ,	±10%,	1/4W
C155	I	DF1740301	Mylar, 0.04μ F,	±20%		1				
C156	l	DF1747201	Mylar, 0.0047μ F,	±20%	l	R213-R214	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W
C157	l	DF1722301	Mylar, $0.022\mu F$,	±20%		R215	RT1082114	Carbon, 820 Ω ,	±10%,	1/4W
C158	l	DF6545101	Mylar, 450pF,	±5%		R216	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W
C160		DF1740301	Mylar, 0.04μF,	±20%		R217	RT1015214	Carbon, $1.5K\Omega$,	±10%,	1/4W
C161-C	162	EA1060169	Elect., 10μF,	16V		R218	RT1033214	Carbon, 3.3K Ω ,	±10%,	1/4W
10,01,0	,102	LA1000109	Εισυί, Ιυμί,	100		R219-R220	RT1033214	Carbon, $1K\Omega$,	±10%,	1/4W
0100	l	DE1740004	Mulan 0.04E	±200/						1/4W
C163		DF1740301	Mylar, 0.04μF,	±20%		R221	RT1010414	Carbon, $100 \mathrm{K}\Omega$,	±10%,	
C164-C	166	EA1060169	Elect., 10μF,	16V		R222	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W
C167		DK1710201	Ceramic, 0.001μF,	±20%		R223	RT1022114	Carbon, 220Ω ,	±10%,	1/4W
C168		DF1747201	Mylar, 0.0047μF			R224	RT1082114	Carbon, 820 Ω ,	±10%,	1/4W
C169		DF1722201	Mylar, 0.0022μ F	, ±20%]			
C170	j	DF1668301	Mylar, 0.068μF,	±10%		R225	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W
C171		EA1060169	Elect., 10μF,	16V		R226	RT1082214	Carbon, $8.2 K\Omega$,	±10%,	1/4W
C172		DF1740301	Mylar, 0.04μF,	±20%		R227	RT1015314	Carbon, $15K\Omega$,	±10%,	
C173		EA1060169	Elect, 10μF,	16V		R228-R229	RT1010214	Carbon, $1K\Omega$,	±10%,	1/4W
C174		DF1740301	Mylar, 0.04μF,	±20%		R230	RT1027114	Carbon, 270Ω ,	±10%,	
01/4		DE1740301	iviyiai, υ.υμε,	∸ ∠U /0		11200	111102/114	Jai DUII, 27 US4,	- 10/0,	-/

DESIG. PART NO. DESCRIPTION R232 R71010214 Carbon, 1500, ±10%, 1/4W R233 R71016114 Carbon, 1500, ±10%, 1/4W R233 R71016114 Carbon, 1500, ±10%, 1/4W R233 R71016114 Carbon, 1500, ±10%, 1/4W R239 R71016114 Carbon, 1500, ±10%, 1/4W R239 R71016114 Carbon, 1500, ±10%, 1/4W R240 R7101714 Carbon, 1500, ±10%, 1/4W R241 R7101714 Carbon, 1000, ±10%, 1/4W R244 R7101714 Carbon, 1000, ±10%, 1/4W R244 R7101714 Carbon, 1200, ±10%, 1/4W R245 R71012314 Carbon, 1200, ±10%, 1/4W R246 R71012314 Carbon, 1200, ±10%, 1/4W R247 R71016114 Carbon, 1200, ±10%, 1/4W R248 R7101714 Carbon, 1200, ±10%, 1/4W R249 R7101714 Carbon, 1200, ±10%, 1/4W R248 R7101714 Carbon, 1200, ±10%, 1/4W R249 R7101714 Carbon, 1200, ±10%, 1/4W R256 R71022314 Carbon, 1200, ±10%, 1/4W R257 R7101714 Carbon, 1200, ±10%, 1/4W R258 R7101714 Carbon, 1200, ±10%, 1/4W R258 R7101714 Carbon, 1200, ±10%, 1/4W R259 R7101714 Carbon, 1200, ±10%, 1/4W R250 R7101714 Carbon, 1200, ±10%, 1/4W R251 R7101714 Carbon, 1200, ±10%, 1/4W R252 R7101714 Carbon, 1200, ±10%, 1/4W	REF.	MARANTZ				C BEE	MADANTZ	DECCE	DTION	
R231			DESCRIP	TION		REF.	MARANTZ			
RT108214 Carbon, 18CQ, ±10%, 1/4W R302 R303 R31010214 Carbon, 18CQ, ±10%, 1/4W R302 R303 R31010214 Carbon, 18CQ, ±10%, 1/4W R304 R304 R306 R31010214 Carbon, 18CQ, ±10%, 1/4W R305 R310 R310 R31010214 Carbon, 18CQ, ±10%, 1/4W R306 R3102314 Carbon, 18CQ, ±10%, 1/4W R306 R310	DEGIG.	TAITT NO.	DEGOTTI			DESIG.	FART NO.	DESCR	111011	
RT108214 Carbon, 18CQ, ±10%, 1/4W R302 R303 R31010214 Carbon, 18CQ, ±10%, 1/4W R302 R303 R31010214 Carbon, 18CQ, ±10%, 1/4W R304 R304 R306 R31010214 Carbon, 18CQ, ±10%, 1/4W R305 R310 R310 R31010214 Carbon, 18CQ, ±10%, 1/4W R306 R3102314 Carbon, 18CQ, ±10%, 1/4W R306 R310	R231	RT1010414	Carbon, $100 \mathrm{K}\Omega$,	±10%,	1/4W			RESISTORS		
R233 RT1016314 Carbon, 15KΩ, 1908, 1/4W R304 RT1016314 Carbon, 15KΩ, 1908, 1/4W R306 RT1016314 Carbon, 15KΩ, 1908, 1/4W R308 RT1016214 Carbon, 15KΩ, 1908, 1/4W R310 RT102214 Carbon, 15KΩ, 1908, 1/4W R311 R312 Carbon, 15KΩ, 1908, 1/4W R311 R312 Carbon, 15KΩ, 1908, 1/4W R312 R312 R311 R312 Carbon, 15KΩ, 1908, 1/4W R312 R312 R312 Carbon, 15KΩ, 1908, 1/4W R312 R312 R311 R312 Carbon, 15KΩ, 10%, 1/4W R312 R311 R312 R311 R312 R312 R312 R312 R312 R312	R232	RT1082214				R301	RT1010214		±10%,	1/4W
R234 R7101614 Carbon, 150Ω, ±10%, 1/4W R304 R304 R31016141 Carbon, 150Ω, ±10%, 1/4W R305 R71016214 Carbon, 150Ω, ±10%, 1/4W R306 R71016214 Carbon, 150Ω, ±10%, 1/4W R306 R71016214 Carbon, 150Ω, ±10%, 1/4W R307 R71016214 Carbon, 126Ω, ±10%, 1/4W R308 R71016214 Carbon, 150Ω, ±10%, 1/4W R309 R71016214 Carbon, 126Ω, ±10%, 1/4W R310 R71016214 Carbon, 126Ω, ±10%, 1/4W R318 R71016314 Carbon, 126Ω, ±10%, 1/4W R326 R71016314 Carbon, 126Ω, ±10%, 1/4W R327 R71016414 Carbon, 126Ω, ±10%, 1/4W R328 R71016314 Carbon, 126Ω, ±10%, 1/4W R328 R71016	R233	RT1015314	Carbon, $15K\Omega$,	±10%,						1/4W
R71010214 Carbon, 15Ω, ±10%, 1/4W R305 R710102314 Carbon, 15Ω, ±10%, 1/4W R306 R710102314 Carbon, 15Ω, ±10%, 1/4W R307 R71010214 Carbon, 15Ω, ±10%, 1/4W R308 R71010214 Carbon, 15Ω, ±10%, 1/4W R309 R71010214 Carbon, 15Ω, ±10%, 1/4W R311 R71010214 Carbon, 16Ω, ±10%, 1/4W R311 R71010214 Carbon, 12KΩ, ±10%, 1/4W R311 R71010214 Carbon, 12KΩ, ±10%, 1/4W R311 R71010214 Carbon, 12KΩ, ±10%, 1/4W R313 R71010314 Carbon, 10KΩ, ±10%, 1/4W R321 R71010314 Carbon, 10KΩ, ±10%, 1/4W R322 R71010314 Carbon, 10KΩ, ±10%, 1/4W R322 R71010314 Carbon, 10KΩ, ±10%, 1/4W R321 R71010314 Carbon, 10KΩ	R234	RT1015114	Carbon, 150 Ω ,	±10%,	1/4W		1		±10%,	1/4W
R71015114 Carbon. 150Ω, ±10%, 1/4W R306 R71012314 Carbon. 12KΩ, ±10%, 1/4W R307 R71015214 Carbon. 12KΩ, ±10%, 1/4W R307 R71015214 Carbon. 12KΩ, ±10%, 1/4W R307 R71015214 Carbon. 12KΩ, ±10%, 1/4W R308 R71015214 Carbon. 12KΩ, ±10%, 1/4W R308 R71015214 Carbon. 12KΩ, ±10%, 1/4W R309 R71015214 Carbon. 12KΩ, ±10%, 1/4W R309 R71012214 Carbon. 12KΩ, ±10%, 1/4W R310 R71012214 Carbon. 12KΩ, ±10%, 1/4W R311 R71012214 Carbon. 12KΩ, ±10%, 1/4W R313 R71012314 Carbon. 12KΩ, ±10%, 1/4W R314 R71012314 Carbon. 12KΩ, ±10%, 1/4W R315 R71012314 Carbon. 12KΩ, ±10%, 1/4W R316 R71012314 Carbon. 12KΩ, ±10%, 1/4W R317 R71012314 Carbon. 12KΩ, ±10%, 1/4W R318 R71012314 Carbon.	R236									1/4W
R239	R237			-					•	
R239	R238	RT1010414	Carbon, $100K\Omega$,	•						
R7104714 Carbon, 470Ω, ±10%, 1/4W R310 R7102214 Carbon, 22KΩ, ±10%, 1/4W R311 R310	R239	RT1015114	•							
R71010114 Carbon, 100Ω, ±10%, 1/4W R7101014 Carbon, 126Ω, ±10%, 1/4W R71010214 Carbon, 186Ω, ±10%, 1/4W R71010214 Carbon, 126Ω, ±10%, 1/4W R71010214 Carb	R240	RT1047114						·		
R242 RT1047214 Carbon, 12KΩ, ±10%, 1/4W R17012214 Carbon, 12KΩ, ±10%, 1/4W R248 RT1012214 Carbon, 12kΩ, ±10%, 1/4W R318 RT1018214 Carbon, 12kΩ, ±10%, 1/4W R317 RT1018314 Carbon, 12kΩ, ±10%, 1/4W R318 RT1018314 Carbon, 12kΩ, ±10%, 1/4W R318 RT1018314 Carbon, 10kΩ, ±10%, 1/4W R317 RT1010314 Carbon, 10kΩ, ±10%, 1/4W R318 RT1018314 Carbon, 10kΩ, ±10%, 1/4W R328 RT1018314 Carbon, 10kΩ, ±10%, 1/4W R328 RT1018314 Carbon, 10kΩ, ±10%, 1/4W R328 RT1018314 Carbon, 22kΩ, ±10%, 1/4W R328 RT1018314 Carbon, 12kΩ, ±10%, 1/4W R328 RT1018314 Carbon,	R241									
R71047214 Carbon, 4.7KΩ, ±10%, 1/4W R313-R316 R71012214 Carbon, 12KΩ, ±10%, 1/4W R313-R316 R71012214 Carbon, 12KΩ, ±10%, 1/4W R318 R71015134 Carbon, 15KΩ, ±10%, 1/4W R326 R326 R71012314 Carbon, 15KΩ, ±10%, 1/4W R321 R324 R71013314 Carbon, 15KΩ, ±10%, 1/4W R325 R71012314 Carbon, 15KΩ, ±10%, 1/4W R326 R71022314 Carbon, 12KΩ, ±10%, 1/4W R326 R71022314 Carbon, 12KΩ, ±10%, 1/4W R327 R7101514 Carbon, 12KΩ, ±10%, 1/4W R327 R71033014 Carbon, 12KΩ, ±10%, 1/4W R327 R71058214 Carbon, 12KΩ, ±10%, 1/4W R328 R71033014 Carbon, 12KΩ, ±10%, 1/4W R328 R71033014 Carbon, 12KΩ, ±10%, 1/4W R328 R71058214 Carbon, 15KΩ, ±10%, 1/4W R329 R71022414 Carbon, 12KΩ, ±10%, 1/4W R326 R71022414 Carbon, 12KΩ, ±10%, 1/4W R327 R71058214 Carbon, 12KΩ, ±10%, 1/4W R328 R71053014 Carbon, 12KΩ, ±10%, 1/4W R328 R71053014 Carbon, 12KΩ, ±10%, 1/4W R328 R71058214 Carbon, 15KΩ, ±10%, 1/4W R3				·					±10%,	1/4W
R244 RT1010214 Carbon, 1KΩ, ±10%, 1/4W R313-R316 RT0510214 Carbon, 1KΩ, ±10%, 1/4W R317 R71010314 Carbon, 1KΩ, ±10%, 1/4W R318 R71015134 Carbon, 1KΩ, ±10%, 1/4W R324 R325 R71010314 Carbon, 1KΩ, ±10%, 1/4W R326 R71012314 Carbon, 1KΩ, ±10%, 1/4W R326 R71012314 Carbon, 1KΩ, ±10%, 1/4W R326 R71012314 Carbon, 1KΩ, ±10%, 1/4W R326 R7102314 Carbon, 2KΩ, ±10%, 1/4W R326 R7102314 Carbon, 2KΩ, ±10%, 1/4W R326 R7102314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R71015314 Carbon, 1KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R326 R7103314 Carbon, 2KΩ, ±10%, 1/4W R336-R336 R71012414 Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R336-R336 R71012414 Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R336-R336 R71012414 Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R336-R336 R71012414 Carbon, 2KΩ, ±10%, 1/4W Carbon, 2KΩ, ±10%, 1/4W R336-R336 R71	R242	RT1047214	Carbon, $4.7K\Omega$,	±10%,	1/4W			, ,		1
R244 RT1010214 Carbon, 1KΩ, 1 1/4W R313-R316 RT0510214 Carbon, 1KΩ, 1 ±5%, 1/4W R246 RT1033314 Carbon, 3KΩ, ±10%, 1/4W R318 RT1010314 Carbon, 15KΩ, ±10%, 1/4W R318 RT1015314 Carbon, 15KΩ, ±10%, 1/4W R318 RT1015114 Carbon, 15KΩ, ±10%, 1/4W R318 RT101514 Carbon, 15KΩ, ±10%, 1/4W R318 RT101514 Carbon, 15KΩ, ±10%, 1/4W R320 RT1010314 Carbon, 15KΩ, ±10%, 1/4W R320 RT1010314 Carbon, 15KΩ, ±10%, 1/4W R320 RT102214 Carbon, 15KΩ, ±10%, 1/4W R322 R324 RT102214 Carbon, 12KΩ, ±10%, 1/4W R324 RT102314 Carbon, 12KΩ, ±10%, 1/4W R325 RT1022344 Carbon, 22KΩ, ±10%, 1/4W R326 RT1012344 Carbon, 22KΩ, ±10%, 1/4W R327 RT1058214 Carbon, 12KΩ, ±10%, 1/4W R327 RT1058214 Carbon, 12KΩ, ±10%, 1/4W R326 RT1013344 Carbon, 12KΩ, ±10%, 1/4W R328 RT1013344 Carbon, 12KΩ, ±10%, 1/4W R328 RT1013344 Carbon, 12KΩ, ±10%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R326 RT1013344 Carbon, 12KΩ, ±10%, 1/4W	R243	RT1012314	Carbon, $12K\Omega$,	±10%,	1/4W	R312	RT1012214	Carbon, 1.2K Ω ,	±10%,	1/4W
R245 RT1022214 Carbon, 22KΩ, ±10%, 1/4W R317 RT1013314 Carbon, 16KΩ, ±10%, 1/4W R1086314 Carbon, 56KΩ, ±10%, 1/4W R318 RT1015314 Carbon, 16KΩ, ±10%, 1/4W RT1015114 Carbon, 16KΩ, ±10%, 1/4W RT1022144 Carbon, 16KΩ, ±10%, 1/4W RT1015114 Carbon, 16KΩ, ±10%, 1/4W RT1022144 Carbon, 16KΩ, ±10%, 1/4W RT10512414 Carbon, 16KΩ, ±10%, 1/4W RT1051244 <	R244	RT1010214	Carbon, $1K\Omega$,	±10%,	1/4W	R313-R316			±5%,	1/4W
RZ46 RT1033314 Carbon 33KΩ ±10% 1/4W R319 RT1015314 Carbon 15KΩ ±10% 1/4W R329 RT1015314 Carbon 15KΩ ±10% 1/4W R329 RT1015314 Carbon 15KΩ ±10% 1/4W R329 RT1015314 Carbon 15KΩ ±10% 1/4W R321 RT1010314 Carbon 10KΩ ±10% 1/4W R321 RT102214 RT102314 Carbon 10KΩ ±10% 1/4W R327 RT102314 Carbon 10KΩ ±10% 1/4W R327 RT102314 Carbon 12KΩ ±10% 1/4W R327 RT102314 Carbon 12KΩ ±10% 1/4W R327 RT102314 Carbon 12KΩ ±10% 1/4W R327 RT1013314 Carbon 12KΩ ±10% 1/4W R327 RT1013314 Carbon 12KΩ ±10% 1/4W R327 RT102314 Carbon 12KΩ ±10% 1/4W R328 RT102334 RT1033314 Carbon 25KΩ ±10% 1/4W R328 RT1023314 Carbon 12KΩ ±10% 1/4W R328 RT1023314 Carbon 12KΩ ±10% 1/4W R328 RT1023314 Carbon 12KΩ ±10% 1/4W R328 RT1023314 RT1033314 RT1033314 RT1033314 RT1033314 RT1033314 RT1033314 RT1033314 RT1033314 RT103314 RT1033314	R245			±10%,	1/4W	I .				1/4W
R247 RT1056314 R249 R349 R349 R349 R349 R349 R349 R349 R3	R246	RT1033314	Carbon 33K Ω ,	±10%,	1/4W			•	±10%,	1/4W
R248 R71012314 Carbon, 12KΩ, ±10%, 1/4W R320 R71010414 Carbon, 100KΩ, ±10%, 1/4W R321 R71022414 R7102304 Carbon, 10KΩ, ±10%, 1/4W R322 R324 R7102304 Carbon, 22KΩ, ±10%, 1/4W R325 R71012414 Carbon, 12KΩ, ±10%, 1/4W R326 R71012541 Carbon, 22KΩ, ±10%, 1/4W R326 R71012541 Carbon, 12KΩ, ±10%, 1/4W R328 R71025414 Carbon, 12KΩ, ±10%, 1/4W R328 R71068214 Carbon, 12KΩ, ±10%, 1/4W R328 R71068214 Carbon, 12KΩ, ±10%, 1/4W R328 R71068314 Carbon, 12KΩ, ±10%, 1/4W R328 R71068314 Carbon, 12K	R247		Carbon, $56K\Omega$,						±10%,	1/4W
R249-R252 R254 RT1010114 R71018314 Carbon, 10ΩΩ, ±10%, 1/4W Carbon, 18KΩ, ±10%, 1/4W R255 RR321 R324 R325 RT10102114 R325 Carbon, 22ΩΩ, ±10%, 1/4W R325 Carbon, 22KΩ, ±10%, 1/4W R325 RT1022114 R71027314 Carbon, 22KΩ, ±10%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R325 RR1022314 R258 RT1027314 Carbon, 22KΩ, ±10%, 1/4W R326 RR326 R71018314 RT1027314 Carbon, 22KΩ, ±10%, 1/4W R328 RR1022414 R329 RT1015314 R7105214 Carbon, 12KΩ, ±10%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R328 RR1022414 R328 RT1015314 R7105214 Carbon, 18KΩ, ±10%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R328 RR1022414 R329 Carbon, 18KΩ, ±10%, 1/4W R328	R248	RT1012314	Carbon, $12K\Omega$,	±10%,	1/4W				±10%,	1/4W
R254 RT1010314 Carbon, 10KΩ, ±10%, 1/4W R322, R323 RT1022414 Carbon, 22KΩ, ±10%, 1/4W R324 RT1033014 Carbon, 33Ω, ±10%, 1/4W R325 RT1022414 Carbon, 12KΩ, ±10%, 1/4W R326 RT102314 Carbon, 22KΩ, ±10%, 1/4W R326 RT105314 Carbon, 22KΩ, ±10%, 1/4W R327 RT1056214 Carbon, 12KΩ, ±10%, 1/4W R328 RT1023314 Carbon, 22KΩ, ±10%, 1/4W R328 RT10233314 Carbon, 22KΩ, ±10%, 1/4W R328 RT10233314 Carbon, 22KΩ, ±10%, 1/4W R328 RT10233314 Carbon, 25KΩ, ±10%, 1/4W R328 RT1026214 Carbon, 126KΩ, ±10%, 1/4W Carbon, 20KΩ, ±10%, 1/4W R329 RT1023314 Carbon, 20KΩ, ±10%, 1/4W R328 RT1026334 Carbon, 18KΩ, ±10%, 1/4W Carbon, 20KΩ, ±10%, 1/4W R329 RT1068314 Carbon, 18KΩ, ±10%, 1/4W Carbon, 18KΩ, ±10%, 1/4W R330 RT1068314 Carbon, 18KΩ, ±10%, 1/4W Carbon, 18KΩ,	R249-R252			±10%,	1/4W			•		1/4W
R255 RT1018314 Carbon, 18KΩ, ±10%, 1/4W R326 RT1012414 Carbon, 13KΩ, ±10%, 1/4W R325 RT1012414 Carbon, 22KΩ, ±10%, 1/4W R326 RT1012414 Carbon, 22KΩ, ±10%, 1/4W R327 RT1012414 Carbon, 12KΩ, ±10%, 1/4W R326 RT1012314 Carbon, 22KΩ, ±10%, 1/4W R327 RT1012314 Carbon, 12KΩ, ±10%, 1/4W R327 RT1012314 Carbon, 12KΩ, ±10%, 1/4W R329 RT103314 RT103314 Carbon, 3KΩ, ±10%, 1/4W R329 RT103314 Carbon, 18KΩ, ±5%, 1/4W R329 RT103314 Carbon, 18KΩ, ±10%, 1/4W R348 R348 R349 R349 R349 R348 R349 R349 R348 R349 R349 R349 R348 R349	R254	RT1010314	Carbon, $10K\Omega$,	±10%,	1/4W				±10%,	1/4W
R256 RT1022314 R257 RT1022314 Carbon, $22K\Omega$, $\pm 10\%$, $1/4W$ R257 RT1022314 Carbon, $22K\Omega$, $\pm 10\%$, $1/4W$ R327 RT1056214 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R327 RT1056214 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R327 RT1056214 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R328 RT102314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R329 RT1013314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R329 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R329 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R329 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R329 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R320 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R320 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R330 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ R331 RT1068314 Carbon, $12K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $12K\Omega$	R255	RT1018314	Carbon, $18K\Omega$,	±10%,	1/4W		RT1033014	Carbon, 33Ω ,	±10%,	1/4W
R256 R71022314 Carbon, $22K\Omega$, $\pm 10\%$, $1/4W$ R257 R71056214 Carbon, $1/4W$ R258 R71022314 Carbon, $1/4W$ R259 R71012314 Carbon, $1/4W$ R259 R71012314 Carbon, $1/4W$ Carbon, $1/4W$ R327 R71056214 Carbon, $1/4W$ R328 R71033314 Carbon, $1/4W$ R328 R71033314 Carbon, $1/4W$ R329 R7102414 R320 R71056214 Carbon, $1/4W$ Carbon, $1/4W$ R330 R71068314 Carbon, $1/4W$ Carbon, $1/4W$ R330 R71068314 Carbon, $1/4W$ Carbon, $1/4W$ R330 R71068314 Carbon, $1/4W$ Car									±10%,	1/4W
R258 R71022314 Carbon, 22 KΩ, ±10%, 1/4W R327 R71056214 R7103313 Carbon, 12 KΩ, ±10%, 1/4W R328 R71022414 Carbon, 23 KΩ, ±10%, 1/4W R329 R71022414 Carbon, 20 KΩ, ±10%, 1/4W R320 R7102414 Carbon, 20 KΩ, ±10%, 1/4W R330 R71056314 R331 R71056314 R332 R71056314 Carbon, 10 KΩ, ±10%, 1/4W R332 R71056314 Carbon, 10 KΩ, ±10%, 1/4W R332 R71010414 Carbon, 10 KΩ, ±10%, 1/4W R335-R336 R71010414 Carbon, 10 KΩ, ±10%, 1/4W R339-R340 R710510414 Carbon, 10 KΩ, ±10%, 1/4W R339-R340 R710510414 Carbon, 10 KΩ, ±10%, 1/4W R339-R340 R710510414 Carbon, 10 KΩ, ±5%, 1/4W R339-R340 R710510414 Carbon, 10 KΩ, ±5%, 1/4W R348-R346 R710510214 Carbon, 10 KΩ, ±5%, 1/4W R348-R346 R710510214 Carbon, 20 KΩ, ±5%, 1/4W R348-R346 R710568214 R70510214 Carbon, 20 KΩ, ±5%, 1/4W R348-R346 R710568214 Carbon, 6.8 KΩ, ±5%, 1/4W R348-R346 R710568214 Carbon, 20 KΩ, ±5%, 1/4W R348-R346 R710568214 Carbon, 6.8 KΩ, ±5%, 1/4W R348-R346 R710568214 Carbon, 6.8 KΩ, ±5%, 1/4W R348-R346 R710568214 Carbon, 6.8 KΩ, ±5%, 1/4W Carbon, 20 KΩ, ±5%, 1/4W R358-R356 R71068214 Carbon, 6.8 KΩ, ±5%, 1/4W Carbon, 20 KΩ, ±5%, 1/4W R359-R350 R71068214 Carbon, 6.8 KΩ, ±5%, 1/4W Carbon, 20 KΩ, ±5%, 1/4W R359-R350 R7106414 R359-R360 R7106414 R359-R360 R7106414 R366-R367 R71002414 R366-R367 R71022414 Carbon, 47 KΩ, ±10%, 1/4W Carbon, 20 KΩ, ±10%, 1/4	R256	RT1022314	Carbon, $22K\Omega$,	±10%,	1/4W					ı
R258 R71022314 Carbon, 22KΩ, ±10%, 1/4W R259 R71012314 Carbon, 12KΩ, ±10%, 1/4W R328 R71033314 R71056214 Carbon, 5.6KΩ, ±10%, 1/4W R329 R71022414 Carbon, 22KΩ, ±10%, 1/4W R329 R71022414 Carbon, 22KΩ, ±10%, 1/4W R330 R7102414 Carbon, 22KΩ, ±10%, 1/4W R330 R71056314 Carbon, 22KΩ, ±10%, 1/4W R330 R71056314 Carbon, 22KΩ, ±10%, 1/4W R330 R71056314 Carbon, 22KΩ, ±10%, 1/4W R332 R71056314 Carbon, 22KΩ, ±10%, 1/4W Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R335-R336 R71012414 Carbon, 12KΩ, ±10%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R335-R336 R71012414 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 24KΩ, ±10%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 24KΩ, ±10%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±5%, 1/4W R335-R336 R710516214 Carbon, 12KΩ, ±5%, 1/4W Carbon, 12KΩ, ±10%, 1/4W R359-R360 R7100414 Carbon, 12KΩ, ±10%, 1/4W Carb	R257	RT1027314		±10%,	1/4W	R326	RT1015314	Carbon, 15K Ω ,	±10%,	1/4W
R259 RT1012314 Carbon, 12KΩ, ±10%, 1/4W R328 RT1033314 Carbon, 23KΩ, ±10%, 1/4W R7102214 Carbon, 22QKΩ, ±10%, 1/4W R330 RT1068314 Carbon, 23XΩ, ±10%, 1/4W R7102214 Carbon, 23XΩ, ±10%, 1/4W R7102213 DK1710301 DK1710301 DK1710301 DK1710301 DK1710301 DK1710301 DK1710301 DK1710301 DK1810402 DK1710301 DK1810402 DK18104	R258	RT1022314	Carbon, $22K\Omega$,	±10%,	1/4W					1/4W 🕺
C2D1-C207 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710201 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710201 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1810402 DK1810402 DK1810402 DK1810402 Ceramic, $0.1\mu\text{F}$, $\pm 20\%$ DK1810402 Ceramic, $0.1\mu\text{F}$, $\pm 20\%$ DK1810402 DK1810402 Ceramic, $0.1\mu\text{F}$, $\pm 20\%$ DK1810402 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK18104001 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ R33-R340 R710512414 Carbon, $100\text{K}\Omega$, $\pm 10\%$, $1/4\text{W}$ Carbon, $100\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ R34-R344 R70512214 Carbon, $100\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ Carbon, $100\text{K}\Omega$, $\pm 5\%$, $1/4$	R259			±10%,	1/4W				±10%,	1/4W
C201-C207 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710201 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ DK1710301 DK17					- 1			•	±10%,	1/4W
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			CAPACITORS					·	±10%,	1/4W
C208 DK1710201 Ceramic, 0.001μF, $\pm 20\%$ Ceramic, 0.01μF, $\pm 20\%$ Db1620101 Ceramic, 0.01μF, $\pm 20\%$ Db1620101 DK1710301 Ceramic, 0.01μF, $\pm 20\%$ Db1620101 Ceramic, 0.01μF, $\pm 20\%$ Cer	C201-C207	DK1710301	Ceramic, $0.01\mu F$,	±20%	- 1					1/4W
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	C208	DK1710201	Ceramic, 0.001µF,	±20%	- 1				± 5%,	1/4W
C213 DK1810402 Ceramic, $0.1\mu\text{F}$, $+80\%$, -20% C214-C217 DK1710301 DK1810402 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$	C209-C212	DK1710301	Ceramic, 0.01μ F,	±20%						1/4W
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	C213	DK1810402	Ceramic, 0.1µF,	+80%, -	-20%				±10%,	1/4W
C218 DK1810402 Ceramic, 0.1μF, $+80\%$, -20% DK1840302 DK1840302 DD1540001 DD1620101 Ceramic, 200pF, $\pm 10\%$ DD1620101 Ceramic, 0.01μF, $\pm 20\%$ DD1620101 Ceramic, 200pF, $\pm 10\%$ Ceramic, 200pF, $\pm 10\%$ DD1620101 Ceramic, 200pF, $\pm 10\%$ R351-R352 RT0512214 Carbon, 1.2KΩ, $\pm 5\%$, 1/4W Carbon, 2.6KΩ, $\pm 5\%$, 1/4W	C214-C217	DK1710301	Ceramic, 0.01μ F,	±20%		1				1/4W
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	C218	DK1810402		+80%, -	-20%			,		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	C219-C225	DK1840302	Ceramic, 0.04μF,	±20%	- 1	R337-R338	RT0510414	Carbon, $100 \text{K}\Omega$,	±5%,	1/4W
DD1620101 Ceramic, 200pF, ±10% Ceramic, 200pF, ±20% Ceramic, 0.01μF, ±20% Ceramic, 200pF, ±10% Ceramic, 200pF, ±10% Ceramic, 200pF, ±10% Ceramic, 200pF, ±10% Ceramic, 0.01μF, ±20% Ceramic, 0.01μF, ±20	C226	DD1540001	Ceramic, 40pF,	±5%				· ·	±5%,	1/4W
C228 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ R343-R344 RN0522314 Carbon, $22\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ C229 DD1620101 Ceramic, 200pF , $\pm 10\%$ R343-R344 RT0568214 Carbon, $6.8\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ C231 DD1620101 Ceramic, 200pF , $\pm 10\%$ R351-R352 RT0512214 Carbon, $1.2\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ C232 DK1710301 Ceramic, 200pF , $\pm 10\%$ R351-R352 RT0512214 Carbon, $1.2\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ C232 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ R351-R352 RT0536214 Carbon, $3.6\text{K}\Omega$, $\pm 5\%$, $1/4\text{W}$ C232 DK1710301 Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ R351-R352 RT1082314 RT1082314 Carbon, $3.6\text{K}\Omega$, $\pm 10\%$, $1/4\text{W}$ C232 DK1710301 SEMICONDUCTORS R355 RT1056314 RT1022214 Carbon, $56\text{K}\Omega$, $\pm 10\%$, $1/4\text{W}$ H201-H206 H207-H214 HD0001105 Transistor, 151555 R355 RT1056314 Carbon, $56\text{K}\Omega$, $\pm 10\%$, $1/4\text{W}$ L201 LC1682002 MISCELLANEOUS R351-R362 RT1047214 Carbon, $470\text{K}\Omega$, $\pm 10\%$, $1/4\text{W}$	C227	DD1620101	Ceramic, 200pF,	±10%					±5%,	1/4W
C229 DD1620101 Ceramic, 200pF, $\pm 10\%$ Ceramic, 0.01μF, $\pm 20\%$ DD1620101 DD1620101 DD1620101 Ceramic, 200pF, $\pm 10\%$ Ceramic, 0.01μF, $\pm 20\%$ DD1620101 DD1620101 DK1710301 DK1710301 Ceramic, 0.01μF, $\pm 20\%$ DK1710301 DK1710	C228	DK1710301	Ceramic, 0.01μF,	±20%					±5%,	1/4W
C229 DD1620101 Ceramic, 200pF, ±10% ±10% R347-R348 RT0510214 Carbon, 1KΩ, ±5%, 1/4W ±5%, 1/4W C230 DD1620101 Ceramic, 0.01μF, ±20% R351-R352 RT0512214 Carbon, 1.2KΩ, ±5%, 1/4W ±5%, 1/4W C232 DK1710301 Ceramic, 0.01μF, ±20% R351-R352 RT1082314 Carbon, 3.6KΩ, ±5%, 1/4W Carbon, 3.6KΩ, ±5%, 1/4W C232 Carbon, 1.2KΩ, ±5%, 1/4W Carbon, 3.6KΩ, ±10%, 1/4W Carbon, 3.6KΩ, ±10%, 1/4W Carbon, 3.6KΩ, ±10%, 1/4W Carbon, 3.6KΩ, ±10%, 1/4W Carbon, 2.2KΩ, ±10%, 1/4W Carbon, 56KΩ, ±10%, 1/4W Carbon, 470KΩ, ±10%, 1/4W Carbon, 470KΩ, ±10%, 1/4W R357-R358 RR1047414 RR1047414 Carbon, 470KΩ, ±10%, 1/4W R361-R362 RR1047214 Carbon, 470KΩ, ±10%, 1/4W R10%, 1/4W Carbon, 560KΩ, ±10%, 1/4W R361-R362 R363 RT1047214 Carbon, 560KΩ, ±10%, 1/4W R366-R367 RT1056114 Carbon, 560KΩ, ±10%, 1/4W R366-R367 R366-R367 R366-R367 R366-R367 R366-R367 R366-R367 R366-R369 R71047114 <t< td=""><td></td><td></td><td></td><td></td><td>l</td><td></td><td></td><td></td><td>±5%,</td><td>1/4W</td></t<>					l				±5%,	1/4W
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	C229	DD1620101	Ceramic, 200pF,	±10%	1				±5%,	1/4W
C231 DD1620101 Ceramic, 200pF, $\pm 10\%$ Ceramic, 200pF, $\pm 20\%$ R351-R352 R71082314 R71082314 R71022214 Carbon, 3.6 KΩ, $\pm 5\%$, $1/4$ W R7102214 R353 R71082314 R71022214 Carbon, 2.2 KΩ, $\pm 10\%$, $1/4$ W R7102214 R353 R71082314 R71022214 Carbon, 2.2 KΩ, $\pm 10\%$, $1/4$ W R7102214 R353 R71082314 R71022214 Carbon, 2.2 KΩ, $\pm 10\%$, $1/4$ W R71022214 R353 R71056314 R71022214 Carbon, 2.2 KΩ, $\pm 10\%$, $1/4$ W R357-R358 R71010414 R357-R358 R71010414 R359-R360 R71010414 R359-R360 R71047414 R361-R362 R71047214 Carbon, 2.2 CArbon	C230	DK1710301	Ceramic, 0.01μF,	±20%	l				±5%,	1/4W
R354 RT1022214 Carbon, 2.2 $K\Omega$, ±10%, 1/4W SEMICONDUCTORS Transistor, 2SC829C R355 RT1056314 Carbon, 100 $K\Omega$, ±10%, 1/4W Carbon, 100 $K\Omega$, ±10%, 1/4W R357-R358 RN1047414 R359-R360 RN1022414 R361-R362 RT1018214 Carbon, 470 $K\Omega$, ±10%, 1/4W R361-R362 RT1018214 R363 RT1018214 R364 RT1056114 R364 RT1056114 R365 RA0502013 RA0502013 RA0502013 R366-R367 RT1022414 R368-R369 RT1047114 Carbon, 220 $K\Omega$, ±10%, 1/4W R368-R369 RT1047114 Carbon, 220 $K\Omega$, ±10%, 1/4W R368-R369 RT1047114 Carbon, 220 $K\Omega$, ±10%, 1/4W Carbon, 470 Ω , ±10%, 1/4W R368-R369 RT1047114 Carbon, 470 Ω , ±10%, 1/4W Carbon, 470 Ω	C231	DD1620101	Ceramic, 200pF,	±10%	l	R351-R352			±5%,	1/4W
H201-H206 H207-H214 H215-H224 HT308291C HD2001105 HD1000105 SEMICONDUCTORS Transistor, 2SC829C Transistor, 1S1555 Diode, 1N60 R355 R356 R356 R357-R358 RN1047414 R359-R360 RN1022414 R361-R362 RT1056314 Carbon, 10OKΩ, ±10%, 1/4W Carbon, 47OKΩ, ±10%, 1/4W Carbon, 47OKΩ, ±10%, 1/4W R361-R362 Carbon, 47OKΩ, ±10%, 1/4W Carbon, 4.7KΩ, ±10%, 1/4W R361-R362 Transistor, 2SC829C RN1022414 R359-R360 RN1022414 R361-R362 RT10166114 RT1047214 Carbon, 47OKΩ, ±10%, 1/4W Carbon, 1.8KΩ, ±10%, 1/4W Carbon, 1.8KΩ, ±10%, 1/4W R365 R366-R367 R1022414 Carbon, 56OKΩ, ±10%, 1/4W Carbon, 56OKΩ, ±10%, 1/4W Carbon, 22OKΩ, ±10%, 1/4W Carbon, 22OKΩ, ±10%, 1/4W Carbon, 47OΩ, ±10%, 1/4W P300 YD2818004 YD2818004 P. C. Board P. C. Board Assembly R368-R369 R368-R369 RT1047114 R368-R369 RT1047114 RT1047114 Carbon, 47OΩ, ±10%, 1/4W Carbon, 47OΩ, ±10%, 1/4W	C232	DK1710301	Ceramic, 0.01μF,	±20%	1	R353			±10%,	1/4W
H201-H206 H207-H214 H207-H214 H215-H224HT308291C HD2001105 HD1000105Transistor, 2SC829C Transistor, 1S1555 Diode, 1N60R355 R356 R357-R358 R359-R360 R359-R360 R359-R360 R359-R360 R361-R362 R364 R364 R365-R367 R366-R367 R368-R369RT1056314 RN1022414 R31010414 R359-R360 R359-R360 R361-R362 R359-R360 R361-R362 R364 R364 R365-R367 R366-R367 R368-R369Carbon, $56K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $4.7K\Omega$, $4.7K\Omega$					I	R354			±10%,	1/4W
H207-H214 H215-H224HD2001105 HD1000105Transistor, 1S1555 Diode, 1N60R356 R359-R358 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R359-R360 R361-R362 R361-R362 R363 R364 R364 R365-R367 R366-R367 R366-R367 R368-R369RT1010414 R361-R362 R359-R360 R361-R362 R361-R362 R364 R364 R365-R367 R366-R367 R368-R369RT1010414 R361-R362 R360-R361 R360-R367 R368-R369Carbon, 100KΩ, ±10%, 1/4W Carbon, 470KΩ, ±10%, 1/4W Carbon, 1.8KΩ, ±10%, 1/4W Carbon, 560KΩ, ±10%, 1/4W Carbon, 220KΩ, ±10%, 1/4W Carbon, 470Ω, ±10%, 1/4W			SEMICONDUCTOR	lS .	Į					
H207-H214 H215-H224HD2001105 HD1000105Transistor, 1S1555 Diode, 1N60R356 R356-R360 R359-R360 R359-R360 R359-R360RT1010414 RN1022414 R357-R358 RN1047414Carbon, 100 KΩ, $\pm 10\%$, $1/4$ W Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R361-R362 R363 R364 R71056114 R365-R367 R366-R367 R368-R369RT1010414 RT1047214 R365 R366-R367 RT1022414 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W Carbon, 470 CA Carbon, 470 CA Carbo	H201-H206	HT308291C				R355	RT1056314	Carbon, 56 K Ω ,	±10%,	
H215-H224 HD1000105 Diode, 1N60 R357-R358 RN1047414 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R359-R360 RN1022414 RT1047214 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R361-R362 RT1047214 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R361-R362 RT1047214 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R361-R362 RT1047214 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R361-R362 RT1047214 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R363 RT1018214 RT1056114 R365 RA0502013 R366-R367 RT1022414 Carbon, 470 KΩ, $\pm 10\%$, $1/4$ W R365 RA0502013 R366-R367 RT1022414 Carbon, 470 KΩ,	H207-H214				1				±10%,	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	H215-H224	HD1000105	Diode, 1N60						±10%,	
L201 LC1682002 Choke Coil R361-R362 RT1047214 Carbon, 4.7 KΩ, $\pm 10\%$, $1/4$ W R361-R362 RT1018214 Carbon, 1.8 KΩ, $\pm 10\%$, $1/4$ W R364 RT1056114 RT1056114 R365 RA0502013 Trimmer, 5 KΩ, $\pm 10\%$, $1/4$ W R366-R367 RT1022414 Carbon, 2.0 KΩ,	*				1				±10%,	
L201 LC1682002 Choke Coil R363 RT 1018214 Carbon, 1.8 KΩ, $\pm 10\%$, $1/4$ W R363 RT 1018214 Carbon, 1.8 KΩ, $\pm 10\%$, $1/4$ W R364 RT 1056114 R365 RA0502013 Trimmer, 5 KΩ, B R366-R367 RT 1022414 Carbon, 2.0 KΩ,			MISCELLANEOUS						±10%,	
F201-F206 FF1107003 Ceramic Filter SFA 10.7MHz Plug R364 RT1056114 Carbon, 560 KΩ, $\pm 10\%$, $1/4$ W P300 P300 YD2818004 P. C. Board P. C. Board Assembly R368-R369 R1047114 Carbon, 470 Ω,	L201	LC1682002	Choke Coil						±10%,	1/4W
	F201-F206	FF1107003	Ceramic Filter SFA	10.7MHz		•			±10%,	1/4W
P300 $X = \{ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	J201-J208	YP1000094	Plug		l	1			В	
P300 YD2818004 P. C. Board R368-R369 RT1047114 Carbon, 470Ω, ±10%, 1/4W (ZZ2818004) P. C. Board Assembly	-								±10%,	1/4W
(ZZ2818004) P. C. Board Assembly	P300	YD2818004	P. C. Board			1	E 1			1/4W
\parallel R374 \parallel RT1068214 \parallel Carbon 6.8 K Ω ±10%. 1/4W		(ZZ2818004)	P. C. Board Assemb	ly	1			, - ,		
THE PARTY OF THE P					l	R374	RT1068214	Carbon, $6.8 \text{K}\Omega$,	±10%,	1/4W

	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION		MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C3	301 302	EA1060169 EA1060169	CAPACITORS Elect., 10μ F, $16V$ Elect., 10μ F, $16V$ Mylar, 4700 pF, $\pm 5\%$,	R516 R517 R518 R519	RT1010114 RT1010114 RT1039214 RT1018314	Carbon, 100Ω , $\pm 10\%$, $1/4W$ Carbon, 100Ω , $\pm 10\%$, $1/4W$ Carbon, $3.9K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $18K\Omega$, $\pm 10\%$, $1/4W$	R583 R584 R585	RT1015514 RT1010214 RT1010314	Carbon, 1.5M Ω , ±10%, 1/4W Carbon, 1K Ω , ±10%, 1/4W Carbon, 10K Ω , ±10%, 1/4W
C3 C3	303 304 306 311	DF5547203 DF1647201 EA1060169 EA1060169 EA2270169	Mylar, 4700pF, $\pm 5\%$, Mylar, 4700pF, $\pm 10\%$ Elect., 10μ F, $16V$ Elect., 10μ F, $16V$ Elect., 220μ F, $16V$	R520 R521 R522 R523	RT1056414 RT1010414 RT1010414 GT0556412	Carbon, $560K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $100K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $100K\Omega$, $\pm 10\%$, $1/4W$ Carbon, $560K\Omega$, $\pm 10\%$, $1/4W$	C551 C552 C553	DD1615001 DF1668301 DF1740301	CAPACITORS Ceramic, 15pF, $\pm 10\%$, SL Mylar, 0.068 μ F, $\pm 10\%$ Mylar, 0.04 μ F, $\pm 20\%$
C3	312 315-C316 317-C318 319-C320	DF1522301 DF1722401 EA1060359	Mylar, 0.022 μ F, ±5% Mylar, 0.22 μ F, ±20% Elect., 10 μ F, 35V	C501-C502 C503	DK1710301 EA1060169	CAPACITORS Ceramic, $0.01\mu\text{F}$, $\pm 20\%$, YY Elect., $10\mu\text{F}$, 16V	C554 C555 C556 C558	EA1060169 DK1840302 DK1810402 DK1810402	Elect., $10\mu\text{F}$, 16V Ceramic, $0.04\mu\text{F}$, $+100\%$, -0% Ceramic, $0.1\mu\text{F}$, $+80\%$, -20% Ceramic, $0.1\mu\text{F}$, $+80\%$, -20%
C	321-C322 323 324 331-C332	EA1060169 EA1070109 EM1040251 EA4750359	Elect., 10μF 16V Elect., 100μF, 10V Elect., 0.1μF, 25V Elect., 4.7μF, 35V	C504 C505 C506-C507 C508	DK1710301 DK1840302 DD1620101 EA1060169	Ceramic, 0.01μ F, $\pm 20\%$, YY Ceramic, 0.04μ F, $+100$, -0% Ceramic, 200 pF, $\pm 10\%$, SL Elect., 10μ F, 16 V	C559 C560-C561 C562	EA4750359 DK1710301 DK1840301	Elect., $4.7\mu\text{F}$, 35V Ceramic, $0.01\mu\text{F}$, $\pm 20\%$ $0.04\mu\text{F}$, $+80\%$, -20%
C	333-C334 335 336	EV1050251 EA2270259 EA3360109	Elect., $1\mu F$, $25V$ Elect., $220\mu F$, $25V$ Elect., $33\mu F$, $10V$	C509 C510 C511 C512	EA4750359 EA1050509 EA1060169 DK1840302	Elect., $4.7\mu\text{F}$, 35V Elect., $1\mu\text{F}$, 50V Elect., $10\mu\text{F}$, 16V Ceramic, $0.04\mu\text{F}$, $+100\%$, -0%	C563 C564	DF1710402 DF1710402	Mylar, $0.1\mu\text{F}$, $\pm 20\%$ Mylar, $0.1\mu\text{F}$, $\pm 20\%$ SEMICONDUCTORS
L:	301 302 304 305	LS1001007 LS1503002 LS1503001 LS3501002	TRANSFORMERS MPX Coil, 19KHz, Amp. MPX Coil, 19KHz, 38KHz Block MPX Coil, 19KHz, 67KHz, Trap. MPX Coil, L. P. Filter	C513 C514 C515-C517	DD1620101 EA1070169 DK1840302	Ceramic, $200 pF$, $\pm 10\%$ Elect., $100 \mu F$, $16V$ Ceramic, $0.04 \mu F$, $+100\%$, -0%	H551 H552-H553 H554-H559 H560-H561 H562	HT307331C HT3036210 HD1000105 HT303720A HT307331D	Transistor, 2SC733 Gr Transistor, 2SC372 Diode 1N60 Transistor, 2SC372 Y Transistor, 2SC733 BL
Н	301-H307 308	HT3037210 HF200301C HT307322A	_	H501 H502 H504	HC1000105 HT306441B HD1000105	SEMICONDUCTORS IC, TA7060 P Transistor, 2SC644 S Diode, 1N60	L551 J551-J565	LC2105001 YP1000094	MISCELLANEOUS Choke Coil, 1mH Plug
Н	309-H310 311-H312 313-H314 315-H320	HT307322A HT104942A HT3064410 HD1000105	Transistor, 2SA494 Gr or Y Transistor, 2SC644T	J501-J508 L501	YP1000094 LI1018801	MISCELLANEOUS Plug IFT FM Det.	P400	YD2827001 (ZZ2827001)	P. C. Board P. C. Board Assembly RESISTORS
J:	301-J303 305-J307 312-J315	YP1000094 YP1000094 YP1000094	MISCELLANEOUS Plug Plug Plug	P550	YD2820005 (ZZ2820005)		R401 R402 R403 R404	RC1033212 RC1012012 RC1027112 RC1015312	Solid, 3.3 K Ω , $\pm 10\%$, $1/2$ W Solid, 12 Ω, $\pm 10\%$, $1/2$ W Solid, 270 Ω, $\pm 10\%$, $1/2$ W Solid, 15 K Ω , $\pm 10\%$, $1/2$ W
	500	YD2820004 (ZZ2820004)	P. C. Board	R551 R552 R553 R554	RT1056214 RT1010114 RT1027314 RT1010414	Carbon, $5.6 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, 100Ω , $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $27 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$ Carbon, $100 \mathrm{K}\Omega$, $\pm 10\%$, $1/4 \mathrm{W}$	R405 R406 R407 R408-R409	RC1033312 RC1012012 RC1010112 RT1010214	Solid, 33 Κ Ω , ± 10 %, $1/2$ W Solid, 12 Ω, ± 10 %, $1/2$ W Solid, 100 Ω, ± 10 %, $1/2$ W Carbon, 1 Κ Ω , ± 10 %, $1/4$ W
F	R501 R502 R503 R504	RT1015114 RT1010214 RT1010114 RT1022314 RT1022114	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	R555 R556-R557 R558 R559 R560 R561	RT1010214 RT1033314 RT1015414 RT1033314 RT1033214 RA0103018	Carbon, $1 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Carbon, $33 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Carbon, $150 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Carbon, $33 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Carbon, $3.3 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Trimmer, $10 \text{K}\Omega$, B	R410-R411 R412-R413 R414-R415 R416-R417 R418-R419	GT0510512 GT0530412 RT0556314 RT0556214 RT1010214	Carbon, $1M\Omega$, $\pm 5\%$, $1/2W$ Carbon, $300K\Omega$, $\pm 5\%$, $1/2W$ Carbon, $56K\Omega$, $\pm 5\%$, $1/4W$ Carbon, $5.6K\Omega$, $\pm 5\%$, $1/4W$ Carbon, $1K\Omega$, $\pm 10\%$, $1/4W$
F F F	R505 R506-R507 R508-R509 R510 R511	RT0582114 RT0568214 RT1010114 RT1056214	$\begin{array}{llllllllllllllllllllllllllllllllllll$	R562 R563-R564 R579 R580	RT1018414 RT1010114 RT1010414 RT1010214	Carbon, $180 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Carbon, 100Ω , $\pm 10\%$, $1/4 \text{W}$	R420-R421 R422-R423 R424-R425 R426	RT0527214 RT1015114 RT1010414 RC1010112	Carbon, $2.7 \text{K}\Omega$, $\pm 5\%$, $1/4 \text{W}$ Carbon, 150Ω , $\pm 10\%$, $1/4 \text{W}$ Carbon, $100 \text{K}\Omega$, $\pm 10\%$, $1/4 \text{W}$ Solid, 100Ω , $\pm 10\%$, $1/2 \text{W}$
/ F	R512 R513 R514 R515	RT1018314 RN1018414 RT1022214 RN1010414	Carbon, 180 K Ω , ± 10 %, $1/4$ W Carbon, 2.2 K Ω , ± 10 %, $1/4$ W	R578 R581 R586 R582	RT1010114 RT1010214 RT1010314 RT1010414	$\begin{array}{llllllllllllllllllllllllllllllllllll$	C401-C402 C403-C404 C405	DK1810351 EA3370509 EA1070259	CAPACITORS Ceramic, $0.01\mu\text{F}$, $+100\%$ Elect., $330\mu\text{F}$, 50V Elect., $100\mu\text{F}$, 25V

1	REF.	MARANTZ		REF.	MARANTZ	
2000	DESIG.	PART NO.	DESCRIPTION	DESIG.	PART NO.	DESCRIPTION
1	C406-C407	EA4760509		J016	YJ0500017	Transistor Socket
7100	C408	EA1070259		J017	YL0103001	Terminal
1	C409	EA1070359	Elect., 100μF, 35V	J018	YL0103001	Terminal
	C410-C413	EV1050251	Elect., 1μF, 25V	F001	FS1005007	Fuse
1						
900			MISCELLANEOUS	W001	YC0240010	AC Cord
-	J401-J416	YP1000099		W002-W003	YB0007001	Connective Cord
C-HU-R				W004	YB0027001	Connective Cord
			SEMICONDUCTORS	W005	YW2827001	Wire Material
-	H401	HT312132A	Transistor, 2SC1213A B or C	W006	YX2827001	Wire Material
	H402-H403	HT304582A	*		1,7,202,001	viii o iii dialai
į	H404-H405	HT104942A				RESISTORS
	H406-H407	HD2000413		R001	RC1008212	Solid, 8.2Ω , $\pm 10\%$, $1/2W$
	H408	HD3002109	Diode, BZ140	R002-R003	RC1068012	Solid, 6.232 , $\pm 10\%$, $1/2W$ Solid, 68Ω , $\pm 10\%$, $1/2W$
9		1120002100	Diode, 5 2140	R004	RK0254002	· · · · · · · · · · · · · · · · · · ·
and the same	P600	YD2827002	P. C. Board	R005-R006	RK0104003	· · · · · · · · · · · · · · · · · · ·
Total Control	1 000	(ZZ2826002)	P. C. Board Assembly	R005-R000	GS1010105	Carbon, 100Ω , $\pm 10\%$, 5W
	·	(222020002)	F. C. Board Assembly	R008	RC1039012	Solid, 39Ω , $\pm 10\%$, $3W$
			MISCELLANEOUS	R009		20112, 2011, 10119, 1111
	M601-M604	IN1006301		3	GT0522501	
13	J601-J605	1	Lamp 6,3V, 0.04A	R011	ŘT1056114	
The second	2001-2005	YP1000094	Plug	R012	RC1018012	Solid, 18Ω , $\pm 10\%$, $1/4W$
	P700	VD2027002	D.O. Darani	R013	RT1056114	Carbon, 560Ω , $\pm 10\%$, $1/4W$
	P/00	YD2827003		R014	RT1082414	Carbon, 820K Ω , ±10%, 1/4W
		(ZZ2827003)	P. C. Board Assembly			
-		l	MICOELLANICOLIO			CAPACITORS
	0701	000000000	MISCELLANEOUS	C001	EA3360109	Elect., 33μ F, $10V$
	S701	SP0605002	Push Switch	C003	DK1710301	Ceramic, 0.01µF, 50V, YY
ij				C004	DO0733380	Oil Paper,0.033μF, 80VAC ±20%
	D704	D=4000044	RESISTOR			
	R701	RT1082214	Carbon, 8.2K Ω , ±10%, 1/4W			
			0.4.5.4.017.0.5			
	0704	55455554	CAPACITOR	1		
	C701	DF1622301	Mylar, 0.022μF, ±10%			
	1.001	. 54400000	TRANSFORMERS			
1	L001	LF1120023	AM Ant. Coil			
	L002	LB3007526	Balun Coil			
	F003	LC1302001				•
Table of the latest of the lat	L004	TS1660803	Power Transf.			
A contract of	L005	LC1302001	Choke Coil, 3μΗ			
1000		1.		·		
The second	11004		MISCELLANEOUS			
The second of	H001	HT403154A	Transistor, 2SD315 (C, D, E, F)		·	
100	M001	IM1104204	Signal DC Mete			
-	M003-M007	IN1008007	Lamp 8V 0.06A	1		
	S001	SS0202017	Slide Switch	1		
	S003	SP0201010	Power Switch		J	
	J001	YT0104011	Terminal for Ant.			
	J004	YL0106004	Terminal			
	J005	YJ0800012	Fuse Holder	1		
1/1	J007	YL0105001	5P Terminal			
	J009 .	YL0104001	4P Terminal			
7	J010	YJ0800013	Meter Socket			
	J011-J014	YJ0800013	Dial Illumination Socket			
	J015	YL0301021	Ground Terminal	1	.	
١				L	L	

SPECIFICATIONS

FM Sections:

IHFM Usabl IHFM Select Capture Rat Image Reject Signal to Not Signal to Not Total Harmon Total Harmon Frequency F	quency Range le Sensitivity tio ction Ratio at 106MHz oise Ratio (Mono) oise Ratio (Stereo) onic Distortion (Mono) onic Distortion (Stereo) Response (ref. 75 \mu sec. de-emphasis) aration at 1KHz	
Usable Sensi Selectivity Image Reject Signal to No Frequency F	quency Range sitivity ction Ratio Dise Ratio Response, -3dB down Onic Distortion	
General:		
	uirements	50 to 60 Hz
	Panel Width Panel Height Depth Unit alone Packed for Shipment	

^{*}These specifications and exterior designs may be changed for improvement without advance notice.